THE WORLD'S WORK

May 1903

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JOSEPH H. CHOATE

UNITED STATES AMBASSADOR TO THE COURT OF SAINT JAMES'

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THE WORLD'S WORK

MAY, 1903

VOLUME VI NUMBER I

The March of Events

THE great subjects that now have most attention in five different quarters of the world are projects for the betterment of backward masses of mankind. The building up of the least fortunate people in Ireland, in Russia, in South Africa, and in our own southern States now engages the wisest men of three great nations. This is a happy change from thoughts of war and even from the routine of peaceful politics.

If the long unrest of Ireland is about to end in quiet and prosperity, if the peasantry of Russia be lifted even a little and some gleam of religious and personal liberty shine in on long-oppressed life there, if the reconstruction of the British colonies in South Africa goes on smoothly, and if the enthusiasm of southern educational leaders continues to substitute thrift for illiteracy in the backward part of the population—these practical movements will all mark definite economic progress of incalculable value; for they will bring into productive activity a large population that has not yet contributed its share to economic civilization. To these great movements may be added the advancement of the populations of our island wards in the Philippines and in Porto Rico.

If all these populations—the Irish tenants, the Russian peasantry, the Dutch and the natives in South Africa, the Negroes and the backward whites in our southern States, and the Philippine peoples—were brought up to the same level of efficient life as the masses of men in any of the dominant industrial parts of the world, there would be such a gain as it has hitherto taken centuries to bring. They would add to the productive classes as large a number of workers as the productive classes now contain. For a very small part of mankind are yet the economic masters of the world.

Slow as all these large tasks are, and perhaps impossible as some of them are within any measurable period, it is significant that the work of some of the governments and of many of the foremost minds of our time is the work of developing backward populations. It is the most straightforward effort that civilization has ever made to extend itself.

AN ERA OF INDUSTRIAL STATESMANSHIP

THAT the building up of backward populations is taking hold on the imaginations of the leading nations and of far-sighted men is proved by other events. The mood of the world—even the ideals of mankind—are changing with this conception of duty. The thought of war is gone—for the time at least—from all men's minds except the Turks'. The military hero is for the moment forgotten. The industrial reconstructor is taking his place. It is Mr. Horace Plunkett in Ireland; it is Governor Taft in the Philippines; it is Mr. Chamberlain on his return from South Africa, who now fill the people's thought.

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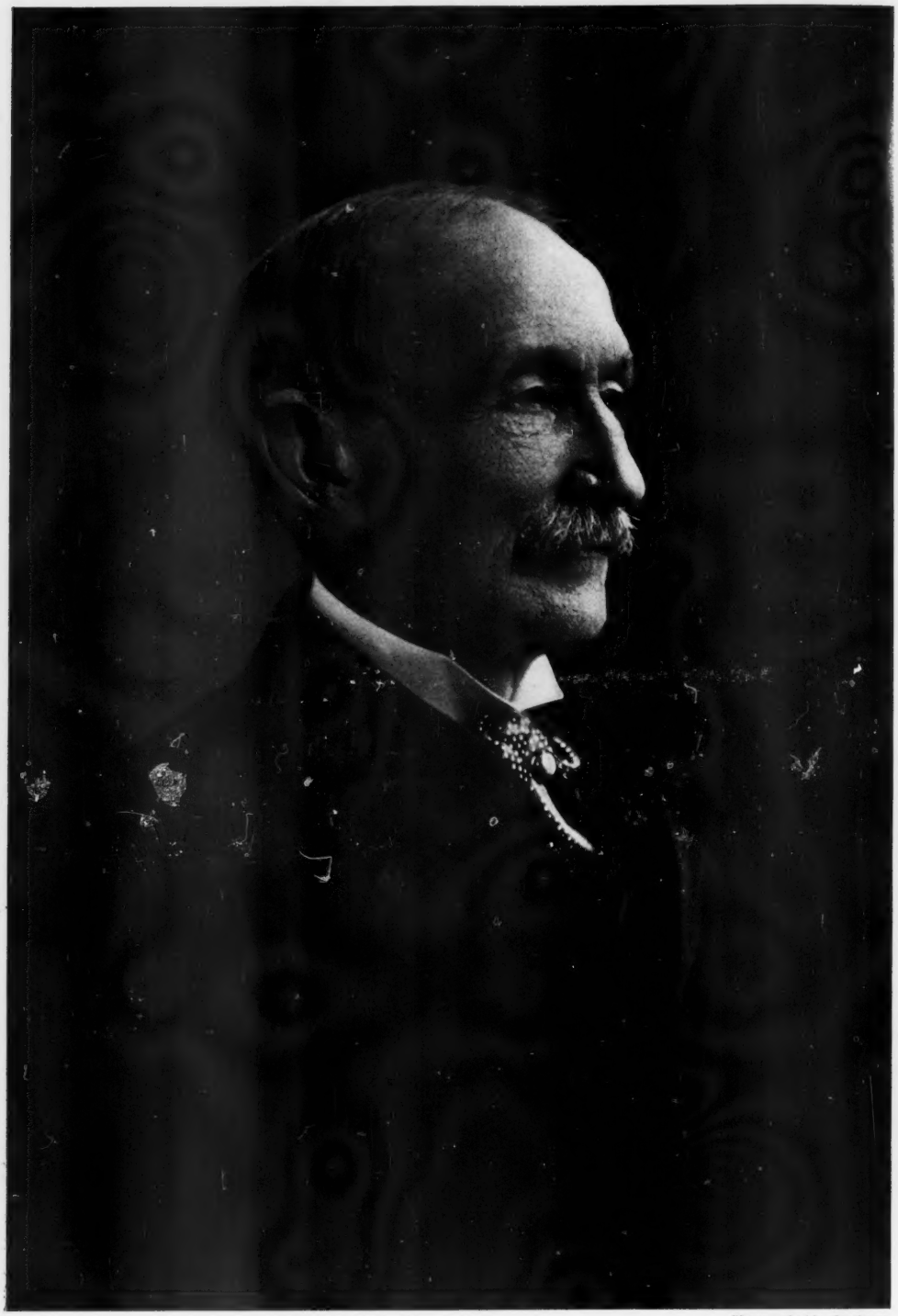

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MR. WAYNE MacVEAGH

MEMBER OF THE HAGUE TRIBUNAL TO WHICH WILL BE REFERRED THE QUESTION WHETHER THE RECENT ALLIES AGAINST VENEZUELA SHALL BE PREFERRED CREDITORS

(*See "The March of Events"*)

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THE RIGHT HONORABLE GEORGE WYNDHAM, M. P.

CHIEF SECRETARY FOR IRELAND, WHO INTRODUCED THE IRISH LAND BILL

(*See "The March of Events"*)

The public sentiment of the world would not brook even a little war by any nation with Venezuela, as two years ago it would not permit a division of China or open hostilities about it. For there is now a definite and in some ways a united public sentiment of the world, which may fairly be called a new force; and it regards these practical tasks of bringing up inefficient populations to efficiency as the separate nations once regarded the acquisition of new territory. The acquisition of productive men is of greater value than the acquisition of territory. Economic efficiency is more desirable and more necessary than military glory.

The industrial age is making this change in the world's thought, and this change may turn out to be its chief contribution to civilization.

It is worth observing, too, that this is not a "movement" of theorists, not a millennial plan of dreamers. It is the work of practical men; for their thought is built up out of action, and they have no utopian schemes manufactured out of dreams of universal peace. It is the statesmanship of the industrial type of man, whose imagination deals with the concrete products of well-directed labor in a world filled with men who have hands to work with.

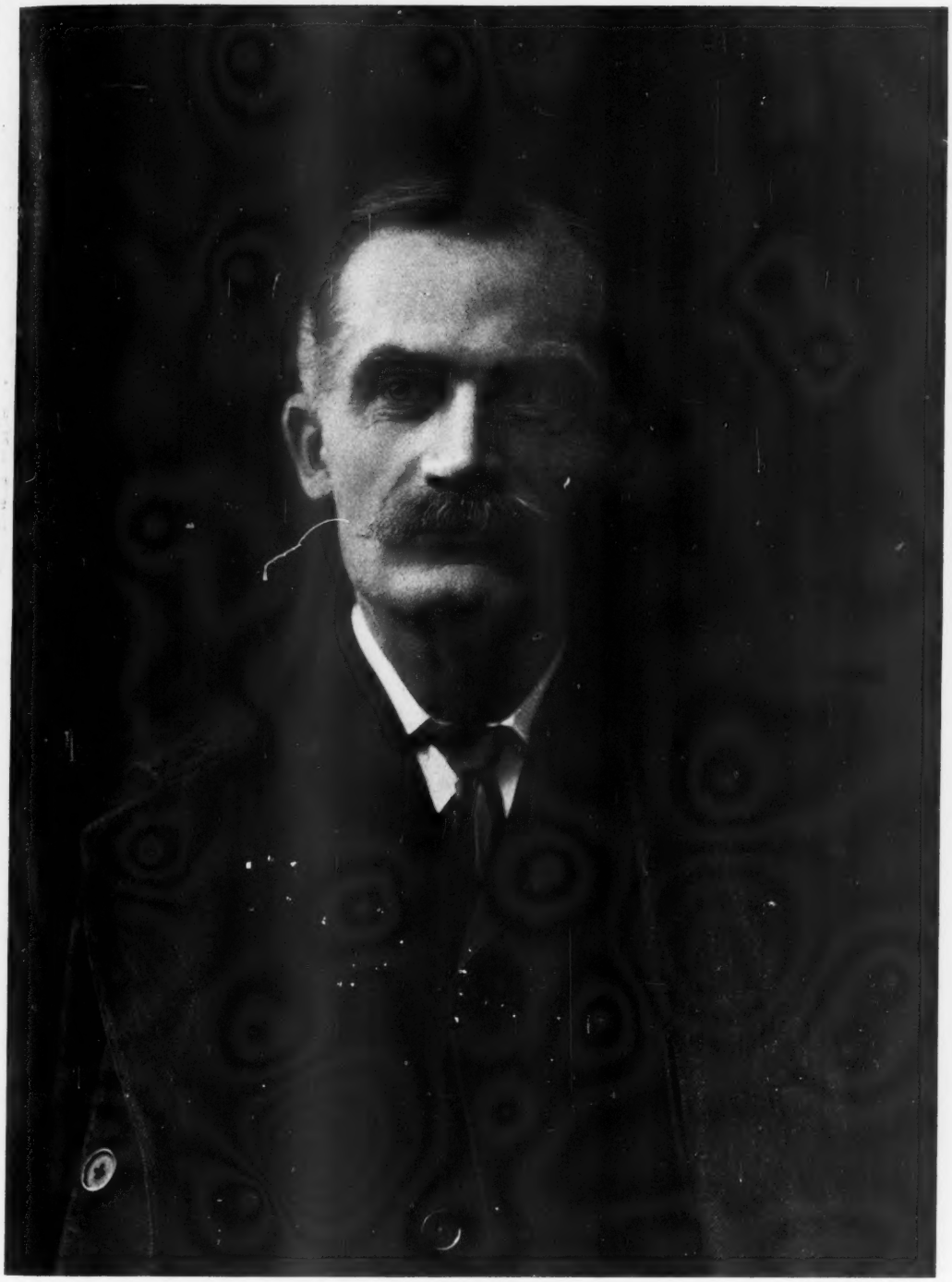
THE CZAR'S DECREE OF LIBERALITY

THE Czar, who is perhaps the most benevolently disposed and the most helpless great ruler in the world, has issued a decree directed at two results—the enlargement of the personal and industrial freedom of the peasantry and the relaxation of ecclesiastical tyranny. The text of it is practically unintelligible to readers who live in an atmosphere of personal and religious freedom. It consists of generalities expressed in imperial phraseology. It must be interpreted less by what it says than by the conditions under which it was put forth and the stubborn large facts of Russian life. There is no definite meaning to American readers in these paragraphs, for instance, of this historic document:

"On ascending the throne of our ancestors by the providence of God, we made a solemn vow before the Almighty and our conscience to guard sacredly the centuries-old pillars of Russian power and to dedicate our life to the service of our beloved fatherland in indefatigable solicitude for our subjects. We chose, in order to assure the well-being of our people, the way indicated by the memorable deeds of our predecessors, especially our never-to-be-forgotten father. God pleased to interrupt the deeds of our father by his early death, and thus laid on us the sacred duty of completing the consolidation of order and truth begun by him in conformity with the exigencies of national life. The troubles agitating our country, which to our deep regret have partly been sown by designs hostile to the State and partly engendered by doctrines foreign to Russian life, hinder the general work of ameliorating the well-being of our people. These troubles confuse the public mind, remove the people from productive labor, and often ruin families dear to our heart and young energies, among high and low, necessary to the internal development of the country. In demanding the fulfilment of this our will, while remaining strongly opposed to any violation of the normal course of national life and having confidence that all will loyally discharge their local duties, we are irrevocably decided to satisfy the needs for which the State has become ripe, and have deemed it expedient to strengthen and decree the undeviating observance of the principles of tolerance laid down by the fundamental laws of the Russian Empire, which, recognizing the Orthodox Church as the ruling one, grant to all our subjects of other religions and to all foreign persuasions freedom of creed and worship in accordance with other rites; and we are further resolved to continue the active carrying out of measures for the improvement of the material position of the orthodox rural clergy, while enabling them to take a larger share in intellectual and public life."

The practical results that will come immediately from the decree will be small. The Russian bureaucracy, which is in the main opposed to change, is almost omnipotent; and what we mean by religious freedom seems anarchy even to a liberal Russian. This decree of religious freedom, for example, is understood not to apply to the Jews.

The large facts are—the serfs, who were technically freed by Alexander, have got small benefits of freedom; they are a mass of the least developed peasantry in Europe; they are yet practically incapable of personal initiative; and the ruling classes regard their power as an inherent right; for the government, from palace to village, is corrupt and oppressive by long habit. At the other extreme of society there is unrest—a more or less blind push toward intellectual and religious freedom. The Czar is at heart more liberal—or he wishes to be—than most of his subjects.



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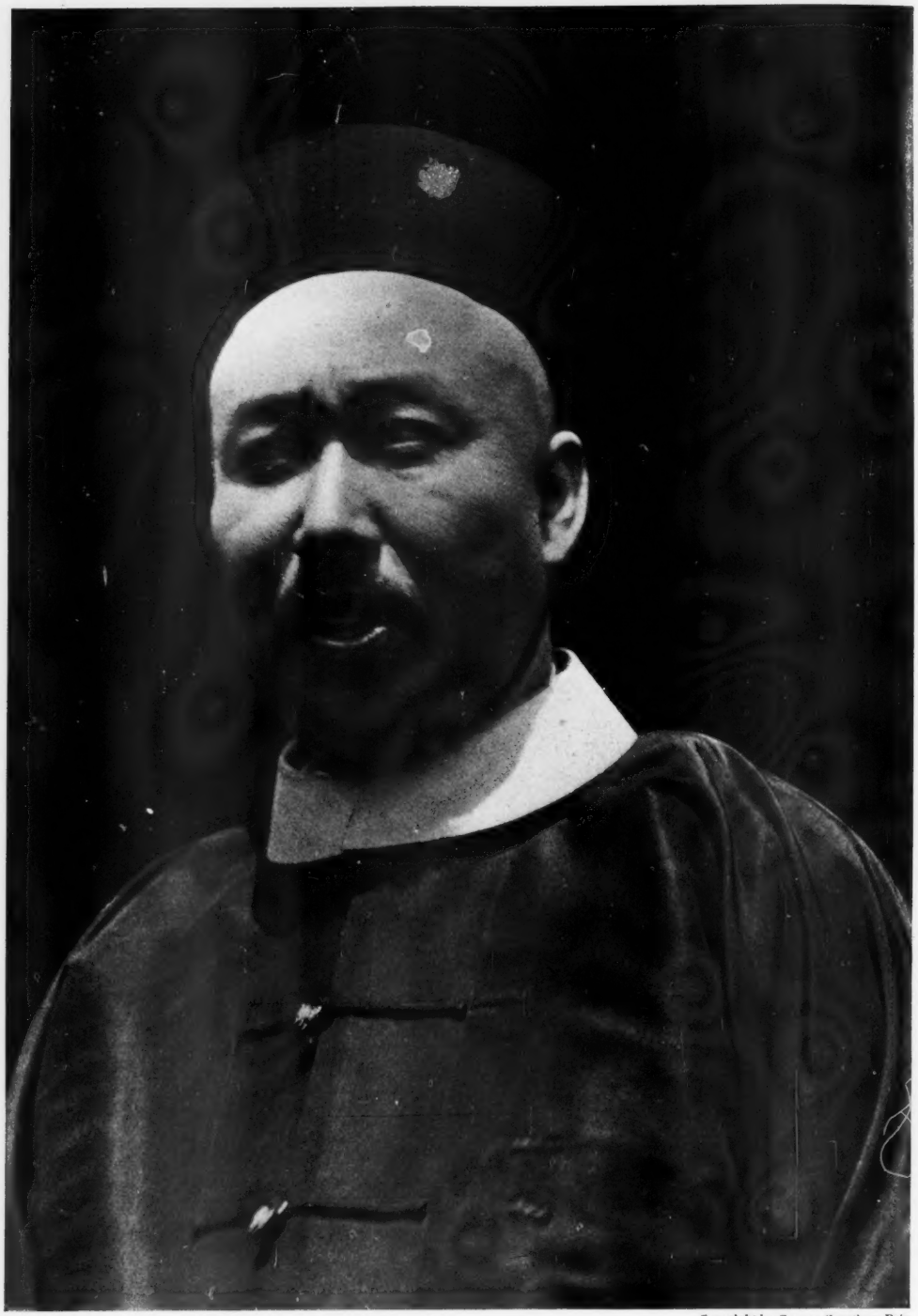
PROFESSOR JAMES W. ROBERTSON

COMMISSIONER OF AGRICULTURE AND DAIRYING FOR THE DOMINION OF CANADA

(See page 3425)



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SIR LIANG-CHEN-TUNG

CHINESE MINISTER TO THE UNITED STATES

(*See "The March of Events"*)

He cherishes the efforts of his father and of his grandfather to better the condition of the people. He is an amiable, benevolent man, who accepts his absolute rulership as a devout inheritance. The direction of his ambition is shown by his call for the Hague Peace Conference and by this decree. But he is the most absolute despot in Europe, by inheritance and of necessity. His conception of religious liberty, for example, must be the conception of the *pontifex maximus* of a tyrannical ecclesiastical organization. The more devout he is the less he can know of real religious freedom.

But the decree has shaken the stolid state of mind of immobile Russian life. It puts an ideal before thoughtful men. It encourages the liberals. It moves all Russia, by a little at least, further toward Europe. Discussion of the definite results that may be expected fill the European journals, but the one certain result is the agitation of Russian thought. Just what will follow toward the reform of the land laws, toward a change in local government and toward religious liberality the slow working of a vast machine will reveal.

The decree has emboldened the liberal leaders to make the following specific demands:

"A great increase and improvement in elementary education under popular control.

"The establishment of *Zemstvos* (local assemblies) where they do not exist, and the granting of greater powers and a representative character to the *Zemstvos* everywhere.

"The completion of the liberation act of Alexander II. by the placing of the peasantry on a footing of legal equality with the rest of the nation.

"A change in the financial policy by relieving the peasantry of the burden of the taxation now imposed for the sake of encouraging mushroom industries which cannot flourish without a prosperous home market.

"Limitation of the power of the police and mitigation of the press censorship."

THE STORY OF THE LONG-HELD-UP CUBAN TREATY

OF an industrial rather than merely political character also is the long-drawn-out delay with the Cuban treaty; but action on it has been thwarted by politics of the most doubtful kind. In a niggardly form it now awaits the approval of Congress, and the President will call an extra session in November to consider it.

The story is long and weary—the more weary because it is not creditable to us.

We promised Cuba freedom and we kept our word. We promised financial relief by a reciprocal trade treaty. We have for a year and a half haggled about it.

In his last message President McKinley made an earnest, almost an impassioned, appeal for such a treaty. The appeal was repeated by President Roosevelt in his first message. "Weighty reasons of morality and national interest," he said, demand a "substantial reduction" of our duties on Cuban products. He recited the pledges in our behalf which Cuba had made a part of its constitution, and he declared that we were "bound by every consideration of honor and expediency to pass commercial measures in the interest of her material well-being."

But a reduction of the duty on sugar was stubbornly opposed by the beet-sugar interest and by some of the representatives of the South, who were further exercised by any proposed reduction in the duty on tobacco. The Senate yielded to this opposition. On June 14th the President sent a special message. But Congress adjourned without ratifying the treaty. When it met again the President again insisted, and a treaty, negotiated between Cuba and the United States, was submitted to the Senate. This was still more favorable to the United States and less so to Cuba than anything previously proposed. It provided for a reduction of only 20 per cent. in our duties on Cuban imports, and for reduction of Cuban duties on our goods of from 20 per cent. to 40 per cent. Again the Senate refused to act. The President then called an extra session, and at that session the treaty was finally accepted with the condition that the House approve it. The President will call Congress in extra session in November.

We promised; President McKinley urged; President Roosevelt urged in two regular messages and in a special message; the Senate remained inactive for two sessions; in an extra session it approved a niggardly treaty conditionally; and the President will call an extra session of Congress. This is the story, and there the matter rests till November.

The "weighty reasons of morality," the

considerations of "honor," are as imperative as ever. The considerations of "expediency" and "national interest" are far stronger. In the year and a half which has passed Cuba has made much progress. Her government has proved more conservative than her best friends dared to expect. Capital from many sources has been attracted to the island. A considerable railroad system is in the course of construction. The repeal of bounties on European sugar in accordance with the decision of the Brussels Conference has given a better market for her sugar. She is being pressed by European Powers for the negotiation of commercial treaties of a favorable character. Her industries are steadily advancing in scope and variety, and are improving in machinery, in methods and in available capital. In a word, her markets are becoming more and more valuable to us, and bid fair to continue increasingly inviting. We are, under the new treaty, admitted to these markets on specially good terms in return for most stingy concessions by us. The Cuban Government has acted with moderation and sagacity and generosity to us.

THE POWERS' SUSPICIONS OF GERMANY

EVERY study of present international relations leads to the suspicion that other nations, especially the English, have of Germany. Germany is on friendly formal terms with all the great Powers, and the Emperor's policy is a policy of building up his own people rather than a policy of aggression. Yet there is a certain German restlessness that requires constant explanation to allay suspicion.

There is no doubt of Germany's wish to control the Rhine to its mouth, and to have such access to the North Sea as the possession of Holland would give her; and this wish is one of the possible dangers to an indefinite European peace. But in addition to a longing for Holland, the German envy (if that be the proper word) of England for her colonies and of the United States for our industrial success keeps the German mind ever on lands across the sea and ever on plans to slacken the activity of the Americans. It is not fair to say that the German Government feels such envy or has such plans. It has given no overt evidence that is worth serious consideration of such a wish or of such action. But the thought of the Germans, as it finds expression in some of their writers on public subjects and as it is often betrayed in their periodical literature, is suggestive of possible future trouble.

A series of letters by an English student of German opinion have been appearing in the London *Spectator* that are causing comment throughout Europe. The writer of them reviews the expressions of German thought in many private influential quarters. He finds a strong opinion that South America "will during the twentieth century be the scene of grave conflicts" and that it will undergo "profound transformation." This is always in connection with the German colonies there. There is talk that will not cease about Germany's wish to buy the Danish West Indies as a naval base to South and Central American waters. There is a strong feeling in favor of a European customs-union against the United States, with Germany as its centre. There is ceaseless complaint about the United States tariff on imports from Germany.

In relation to England a similar feeling of fundamental hostility or suspicion is common. If England is hated in all Europe, it seems to be hated more in Germany than elsewhere. England would stand in the way of a German acquisition of Holland. England's great navy stands in the way of German influence on the sea. England would, if necessary, stand with the United States in maintaining the Monroe Doctrine for the protection of South America from European control of territory.

All this is not to be taken too seriously. There is nothing to show that Germany threatens the peace of Europe or of the world. But the Germans have an ambition that is larger than their own land, and the idea of a Pan-Germany appeals strongly to their imaginations when they see the great part that England and the United States are playing in the world's commerce and colonization. Wise statesmanship will cause this ambition to spend itself in healthful rivalry rather than in open hostility; and fortunately commerce is becoming more and more a force for peace.

THE DANGER TO HOLLAND FROM GERMANY

IT is unluckier that any labor trouble should occur in Holland just now than in almost any other country in the world. The

general unrest of labor threatened to become open revolt when the Government set itself more strongly against strikes than any Government has hitherto done. Laws were passed making participation in a strike punishable by fine and imprisonment, which was equivalent to making a strike a sort of treason. For the Government owns a considerable part of the railroads, and the railroad employees are therefore public servants. The Government proposes, also, to train, as if for military service, a brigade of men who shall take the places of strikers. These actions precipitated a general strike that had already been threatened, and the land and a part of the water transportation of the country were for a time stopped.

One interesting result to the general student of social disorders is that "socialism is devouring itself in the Netherlands." That is to say, the State ownership of railroads is a sort of socialism; and the socialistic strikers strike against their own system—against the (thus far) socialistic State. This is a curious and interesting occurrence to those who advocate State control.

But a far more practical matter is the danger that the occurrence puts Holland in. It may even be said that the peace of Europe is in a certain (remote) way endangered. Holland is geographically a part of Germany, and Germany would give much for political control of this territory which lies on the North Sea. Holland "sits astride Germany's great river." German commerce, and most of all the German navy, would profit by political control of Holland. Much comment has been made throughout Europe on a map of "the German Empire as it will be in 1950," whereon Holland is represented as a part of Pan-Germany. The German Emperor is said to have sent a warning to the Dutch Government that German commerce must not be interfered with by labor troubles. Whether or not this be true, or whether, if true, it were meant as a threat, it has caused much comment. English opinion is that Holland is in a much more precarious situation than the diplomats of Europe have openly confessed.

The German desire for Holland is hardly concealed; and there are three especial reasons for it: its geographical position; the possibility that the young Queen may die childless and that the Dutch may then set up some form of republican government; and the growth of the Hague Tribunal in the good wishes and high expectations of mankind. The opposition to German annexation would be stronger from other governments if the Dutch should have a definite programme for a democracy; and it will be stronger in proportion to the growing importance of the Hague Tribunal.

The situation is acute enough to keep international suspicions alive, but not threatening enough to cause immediate fear. Yet such a general disturbance as a labor threat to transportation lines, for these reasons, brings a distinct political danger as well as an unusual situation between employer and employee; for it is a strike against the State.

THE PASSING OF SOUTH AMERICAN SUSPICION OF THE UNITED STATES

FOR a long time, and especially since our war with Spain, Central and South American opinion has been more or less suspicious of the United States. This suspicion showed itself during the early sessions of the last Pan-American Congress, held in the City of Mexico; and it is a feeling as natural as it is unwarranted. Time and events alone can cause us to be fully understood in these Spanish-American countries. Every incident, therefore, that causes a better understanding is to be heartily welcomed.

The unhappy Venezuelan trouble, though an ill wind, has blown us some good toward a better understanding. The Argentine Republic addressed a long argument to our Government in an effort to secure from our Government a declaration condemning the forcible collection of debts by strong governments from weak ones; and in this argument the Argentine Government committed itself to the Monroe Doctrine. Of course our Government could make only a non-committal reply to such a request. We cannot take a position that could be construed as responsibility for the debts of any other government but our own. All this is old straw that has been threshed before.

The Argentine Government and all other Spanish-American Governments are obliged to know, and do know, that this forcible method of collecting debts did not commend itself to public opinion either in the United States or in England. It is not likely to

become common. It brings too many complications. It gives the whole world too much trouble. It is not a method that one strong Power would use against another strong Power, but only against a weak one. The Venezuelan incident has not commended itself to civilization as a good precedent.

But the open declaration of the Argentine Government in favor of the Monroe Doctrine is a step forward in the better understanding of the position of the United States. It is the first declaration of the sort that any South American Government has made; and this is a point of very considerable importance.

Important for the same reason is a sensible and liberal expression of Brazilian opinion that has been published in *La Prensa* of Buenos Ayres, the chief newspaper of South America. This newspaper makes a long review of our treaty with Colombia concerning the canal; it shows why political fear of the United States is unwarranted; it points out the political fairness and liberality of the treaty and the respect that our Government shows for Colombian autonomy; it makes plain the advantage to Central and South America of the control of the canal by our Government; and it says in conclusion:

> "This is satisfactory and tranquilizing as a positive formula of the American solidarity and conservativeness expressed eighty years ago (in the Monroe message), and more necessary at present than ever."

These are cheerful indications of a growing confidence that South American opinion must have in the friendly purposes of the United States. Such confidence is of importance to us as well as to them; for we must make commercial conquest of South America, and if political suspicion is allayed trade will flourish better.

A CHECK TO RAILROAD CONSOLIDATION

WE seem to be in a fair way at last to find out what the Government can do to prevent the indefinite consolidation of railroads. The biggest consolidation ever made was the unified control of the Northern Pacific and the Great Northern, including the Chicago, Burlington & Quincy. These, it will be recalled, were, after a sharp conflict between the controlling owners, practically united in ownership by the organization of the Northern Securities Company, a corporation formed simply to hold the controlling interest in these roads.

This enormous consolidation of two great competing roads was thought by the Attorney-General of the United States to be in violation of the anti-trust law, because it restricted competition and was in restraint of commerce. He brought suit against the unifying (or "holding") company, the railroad companies, their officers and some of their principal owners; and the decree of the United States Circuit Court of Appeals, sitting at St. Louis, was a complete victory for the Government. The Court ordered the dissolution of the "holding company" because it is in violation of the anti-trust law—it destroyed the possibility of competition between the roads and was in restraint of commerce.

If the Supreme Court sustain this decision, as it is thought that it will by many well-informed lawyers who know the decisions of the Court involving similar principles, what will follow? Is not practically every other interstate railroad consolidation also in violation of the anti-trust law? Are not even interstate industrial consolidations of formerly competing companies unlawful? Some other railroad consolidations undoubtedly are unlawful; but others may not be. No sweeping conclusion is yet warranted.

But three assertions may be made with confidence:

1. No decision of any case, no construction of any law, will prevent consolidations in some form even though they do restrict competition. The wastes of competition are as obvious as its benefits. No law will seriously check the general economic tendency toward combination.

2. But the monopoly of certain far-reaching kinds of public service and of certain universally necessary products is not going to be permitted by the public.

3. These two propositions seem (and doubtless are) contradictory, in theory at least. But the main matter of all this agitation and effort is to prevent the great evils of combination without making helpful combinations impossible. That is the task, and we are just entering an experimental period in dealing with it. In the clash we may find out a way to preserve the liberties of the people *against* organization, and at the same time to preserve the liberties of the people also who are *in* organization.

No preceding incident in the so-called anti-trust agitation compares with this in importance; and the country owes this to the personal energy and insistence of the President. The anti-trust law had before his administration been practically a dead letter. It is now very much alive. Mr. Roosevelt continues to show that quality as an executive which years ago provoked the remark from a New York politician that "he had no more sense than to think that a law is made to be enforced."

Whether this now-living anti-trust law shall play havoc with many combinations formed in restraint of trade will depend first upon the decision of the Supreme Court and then on public opinion. Public opinion may express itself through Congress in modifying it or in repealing it. But, whatever happens, this decision, affecting the largest combination of transportation interests ever made, brings us at one leap into a practical effort to see what can be done to restrain harmful combinations. We pass from mere discussion to experiment. The incident reminds us, too, that the economic era of consolidation has brought new legal problems. The old formulas no longer fit.

THE GROWTH OF THE IDEA OF MUNICIPAL OWNERSHIP

THE April municipal elections in Chicago and in the cities of Ohio show a drift toward the extension of municipal functions that has been getting stronger. In Chicago the main matter was the renewal of street-railway franchises which will soon expire. Mayor Harrison stood for renewals for short terms and for ultimate municipal ownership, and he was reëlected. In Cleveland practically the same question was presented in another form, and Mayor Tom L. Johnson was reëlected. Both these happened to be Democrats, but party politics, though an important factor in these elections, was not thought to be the determining factor. The main question that a decisive number of voters answered at the polls, as they understood it, was whether the corporations should rule the city, or the city the corporations. At Toledo, where Mayor "Golden-Rule" Jones was again elected by an overwhelming vote, the same disposition was shown even more strongly. He was an Independent candidate. There was a Democratic candidate and a Republican candidate, each with his party organization and its newspapers. The newspapers practically ignored Mr. Jones and he had no important support of this kind. His reëlection means simply that he has won the confidence of the masses by his programme, which used to be called "socialistic." While the academicians are discussing the theory of municipal ownership, the people, in these cities at least, are getting into the habit of voting for its coming.

MR. ROOSEVELT'S CONTINENTAL OUTING

THE President seems—and he has some right to be—the happiest man in the country. On his journeys last year he spoke to the people about the regulation of trusts, and he has since signed legislation to regulate them, and the Government has won its case in the United States Circuit Court of Appeals against the Northern Securities Company. He has had the satisfaction, too, since his last outing, of signing the Panama Canal act; and the reciprocity treaty with Cuba seems certain at the hands of Congress in extra session in the fall. These are large events to have come in a single winter. And the same winter brought the army reorganization act and a large appropriation for the increase of the navy—both measures that the President had a keen interest in. It has been an unusually successful legislative season for the important measures that he recommended.

But Mr. Roosevelt's happiness, as most other men's, lies in less things than these. He is out of harness; he is meeting the people; he is outdoing every predecessor in the energy and the extent of his traveling; he is seeing nature, too, and no man takes a keener joy in outdoor life than he. He knows his West. In variety of experience and intensity of enjoyment it is doubtful if any man's vacation yields him more. To be sure, it requires a continent for him to take a wholly satisfactory outing. But fortunately we have the continent, with diversity enough to satisfy all his activities; and he has well earned even a continental vacation.

The President's public addresses up to the time he entered the Yellowstone Park were characteristic and interesting. He spoke of the Monroe Doctrine and the need of a strong navy—"he who speaks softly and carries a

big stick will go far"; of the tariff, which he would not now radically revise; of the trusts, for the regulation of which Congress made legislation that is satisfactory for the present; of the Philippines, where Governor Taft is proving himself as wise an administrator as any man that any country ever sent on such an errand; and of the Cuban treaty, which he hopes Congress will approve. With an energy never equaled he has made many short non-political speeches also, about good citizenship, activity, family life, natural history —always enjoying himself and always speaking rather as Theodore Roosevelt than as President. The people see the man rather than the official.

Politics? It is only fair to say that Mr. Roosevelt has been going to the Rocky Mountains for many years for recreation. It is a habit with him; and it is characteristic of him to speak about what has been done under his administration rather than to discuss political theories. But if the less versatile, indoor politicians of his party be again disposing of him in their club gossip, and are arranging a consolidation of the great financial interests against him, they are likely to be reminded at the end of the game that Presidents have before prospered by the enemies that they have made. Mr. Roosevelt has gone on a vacation; but he can do more things —including political things—during a vacation than duller men can do who stick to their work the whole year round.

"GOVERNMENT BY INJUNCTION"

SO-CALLED "government by injunction" has had two recent applications—the first to forbid, for a time, a strike on the Wabash Railroad, and the second to restrain members of trade-unions and others from interfering with a trolley-car service in Connecticut.

The first important use of the injunction in cases of dispute between employers and employed was in 1894, at the time of the violent railroad strikes on the roads that centre at Chicago. The United States Circuit Court (Judges Wood and Grosscup) enjoined trade-unionists and others from "interfering with or stopping any of the business" of the railroads (which were enumerated), and also from "compelling, or inducing by threats, persuasion, or violence any of the employees of such roads to refuse or fail to perform any of their duties as employees." The United States courts took jurisdiction of these cases because of the interruption of interstate commerce and the transportation of the mails. That is a simple and well-established right and duty on their part. But the noteworthy thing in the action of the courts—for the Circuit Court was afterward sustained —is the scope of the action, which was not confined to enjoining things previously accepted as illegal, but went to the extent of enjoining the act of "inducing" and of "persuasion."

It was declared at the time and has since been held, not judicially, but by lawyers of wide reputation, that this was a novel assumption of authority. Partly for the enforcement of the orders of the courts, partly in the discharge of his general duty with reference to interstate commerce and the carriage of the mails, President Cleveland ordered the United States troops to intervene; violence was stopped and order reëstablished. Few conservative men doubt that he did what he ought to have done, but the working-men of the country, many of whom had never had a clear idea of the functions of the Federal judiciary, were made suspicious.

This is the most important case of so-called "government by injunction." But early in March of this year the employees of the Wabash Railroad Company, who had threatened a strike, were, with the officers and delegates of their various unions, enjoined by the Circuit Court of the United States (Judge Adams sitting) from "in any way or manner ordering, persuading, inducing or otherwise causing, directly or indirectly, the employees to strike or quit the service of that company." The injunction was also extended to all attempts to interfere with connecting railroads, or to prevent them from transporting the freight sent to them by the Wabash.

On the first of April this injunction was dissolved by Judge Adams. But the main matter of the injunction was, however, the things that it forbade. Judge Adams followed Judges Wood and Grosscup in prohibiting "persuasion" and "inducement." The assertion of authority and the use made of that authority are practically the same in both instances. There have been numerous like injunctions issued by the

Federal courts in various parts of the Union, notably in West Virginia, in Wisconsin and in Ohio.

Judge Adams's injunction in the Wabash case gave time for the railroad company and its employees to settle their differences; and for this protection to the public it has been commended in many quarters. But fortunate as this result was, it does not touch the larger principle involved. It is a principle that has not yet received public approval.

The State courts have been slow in following the Federal courts, probably because they had no such definite function as that which relates to interstate commerce, and possibly because they are somewhat nearer to the people. But on the fourteenth of March, the Supreme Court of Connecticut, in the matter of the strike and boycott against a trolley company, issued an injunction fully as sweeping as any from the United States courts. The Court enjoined numerous trade-union officers and still more numerous individuals, indicated as strikers or persons connected with the dispute, from "any act or language intended or intending to prevent persons from continuing in or entering the employment of the plaintiff," who was the trolley company. There were many things enjoined besides—boycotting, picketing, patrolling, loitering near the company's lines and the like. Unquestionably the Court was influenced indirectly by the precedents of the Federal judiciary.

Whether or not this principle be finally upheld by the highest courts, it is sure to be contested in public discussion and to play a large part in party politics and perhaps in future elections.

MR. ROOSEVELT'S POLITICAL APPOINTMENTS

PRESIDENT ROOSEVELT'S political appointments that have provoked most independent criticism are Mr. Payne as Postmaster-General, Mr. Clarkson, of Iowa, as Surveyor of the Port of New York, Mr. Byrne as District-Attorney in Delaware, and Doctor Crum as Collector of the Port at Charleston, S. C.

In regard to Mr. Clarkson's appointment, it was felt that the President had used an office in New York as a reward for a political manager; for no business man in New York would have thought of the Iowa politician for the place. Such an appointment was on the face of it distinctly contrary to Mr. Roosevelt's creed and general practice.

Mr. Byrne's reappointment to a position that he had filled without credit was construed, whether it was so meant or not, as recognition of the Republican faction in Delaware that has been built up by Addicks's bribery. This is the most unfortunate appointment that Mr. Roosevelt has made. Personal loyalty to a friend is a good quality in any man, whether he be President or not; but it is not a sufficiently good quality to cover up so unfortunate a "recognition" of the very worst force in American politics. That a man is an Addicks man is enough to make him ineligible to decent political society.

The criticism of Doctor Crum's appointment has been chiefly, but not wholly, in the South, where resentment has been strongly expressed against the appointment of a colored man to this office in Charleston. But this is rather race criticism than political criticism—except that the most has been made of the inadvisability of appointing a man to office who for any reason is not acceptable to the community. On the other hand, there has been a strong rally to the President of that strong and large body of opinion that thinks it unfair for the Negro to be ignored in the bestowal of Federal offices.

The President's appointment of Mr. Plimley as sub-Treasurer at New York was withdrawn and Mr. Fish was appointed to the place. The appointment of Mr. Plimley, who was unfit, brought to light the same weakness of men in important positions that has many a time done damage; for he had the written indorsement of prominent men who knew that he was not a proper man for this post. It sometimes seems that nobody has the courage to deny any man a recommendation for a public office. It has been proved time and again that no such recommendations are worth serious consideration. There is hardly a man out of jail who cannot get them, and get them from good men.

The remarkably small number of the President's appointments that have provoked criticism is noteworthy. Noteworthy, too, is the excellence of most of them. He has raised the standard of judging appointments, and he has raised it higher than the superficial observer who has a short memory is likely to give him credit for.

THE SUCCESSFUL COAL STRIKE COMMISSION

THE award of the Coal Strike Commission, as it has been interpreted and received by the public, is rather to the advantage of the miners than of the operators. The public has commended the spirit of the report and has concluded that the mismanagement of the situation shown by the operators was a somewhat worse practical offense than the conduct of the miners, which also was reprehensible.

But the large fact that stands out is not the relative advantage gained by one side or by the other, but rather the important fact that the President's action in calling a truce and in appointing this Commission led at last to peace and to work. The public will have to pay more for anthracite coal than it paid for several years before the strike, for both miners and operators will get more money because of the increase of wages. But the public is willing to accept a settled condition even at this price.

Of course, no permanent settlement—no certain plan to prevent the recurrence at some time of another such strike—could be devised. But the recommendations of the Commission go as far toward permanent prevention as could be expected. These three recommendations are the most valuable part of the report:

> "The discontinuance of the system of employing the 'coal and iron police,' because this force is believed to have an irritating effect, and a resort to the regularly constituted peace authorities in case of necessity.
>
> "A stricter enforcement of the laws in relation to the employment of children.
>
> "That the State and Federal Governments shall provide machinery for compulsory investigation of difficulties similar to the investigation which this Commission has made."

The first recommendation is local, but the other two are of general application; and the emphasis given to them by the Commission is worth to the whole community all that the Commission cost. The principle of compulsory investigation of labor troubles seems likely to be adopted. It is already embodied in a statute in Illinois and perhaps elsewhere. And in general it may be said that the work of this able Commission is entitled to the heartiest appreciation of the whole country. The value of its report will increase with time and study.

MR. CLEVELAND AND THE PRESIDENCY

THERE is a strange persistence shown by some who have forgotten our political history and do not know public feeling, in regarding Mr. Cleveland as a possible Democratic candidate for the presidency next year. If anything be certain in politics, it is certain that no man can be elected President who has twice held the office. That no man shall have a third presidential term became a fixed law when Washington declined a third term. Those who forgot this law were reminded of it when a stubborn effort was made to nominate General Grant for a third term.

Furthermore, few things are more certain than the unpopularity of Mr. Cleveland among the managers of his own party. Although he is the only Democrat who has occupied the White House in more than forty years, and although he made a permanent place for himself in our history, his party would not now have him. The southern Democrats, who are the dominant part of the party, although they may have drifted away from Mr. Bryan, have not drifted back to Mr. Cleveland.

Finally, if anything can be more certain than Mr. Cleveland's practical ineligibility for a third term and of his unpopularity among his own party managers, it is his own state of mind as revealed by his conduct and his recent public utterances. He has neither done nor said anything that implied that he would become a candidate again.

It has been proved that he was the best candidate that his party has had for half a century; but to talk of him as a candidate again argues a paucity of men that is unbecoming the great party to which he belongs.

THE MOST DIRECT WAY TO BUILD UP A PEOPLE

CANADA today supplies nearly all the cheese that Great Britain imports, and is steadily increasing large shipments of butter to the same market. This has come about by bringing science home to the Canadian farmer as briefly related by Mr. Iles in this magazine. The United States Department of Agriculture at Washington and the experiment stations throughout the Union prosecute researches much more extensive and thorough than those of our Canadian neighbors.

But the Canadians have the knack of

immediately putting the experimental and laboratory knowledge into practical use —into the farmers' hands. They manage to induce the farmers to use the new knowledge at once. No sooner have the official experts in cattle, the experimenters in fodders and silos, the professional makers of butter and cheese arrived at their conclusions, than these are pressed upon the farmers at their homes. By model dairies and curing-rooms, by traveling dairies of simple type sent through the villages and cross-roads, by lectures, pamphlets and newspaper articles, by shows at fairs, the facts and their value are plainly set forth, to be eagerly learned and practised. They go even further. Butter and cheese of the best brands might remain on the dairy shelves if new markets were not found and made safely and easily accessible. Accordingly, the Canadian Government instituted a system of continuous cold storage all the way from the dairies to the ports of Great Britain. The policy of the leaders is simply to break the way for new and vast interests and then to withdraw in favor of the spirit of self-help that they have aroused and directed.

Professor Robertson, the chieftain in all this work, has always had the intelligent and hearty backing of his Government, and never more fully than now, when the Honorable Sydney Fisher, himself a successful farmer, is Minister of Agriculture.

This remarkably direct application of science and organization to farm industries means great gain for the men and women on the farms; but what about their children? They, too, are remembered by a bettered training in which the duties and joys of the farm are emphasized. Schools are to be established as the informing anterooms to the wheat-field, the orchard, the wood-lot and the dairy. An all-round appeal to intelligence will show that many a learner with a weak verbal memory is a deft fence-builder, that a boy faulty in spelling may know how to transplant a sapling so that it will thrive. These schools are to be placed at strategic centres, where they will have the best chance of becoming national object-lessons. A sedulous and wide-awake canvass will bring the merits of these schools before every rural community in Canada. This and other such fundamental plans radically change the whole popular conception of education.

PREPARING FOR THE ST. LOUIS WORLD'S FAIR

THE amazing history of the Louisiana Purchase is emphasized by the celebration of its centennial at St. Louis; and the world's fair to be held there next year in commemoration of it is now firmly fixed in the minds of the people.

A cynic has said that we regard world's fairs as a toper regards drink—we have had enough but are always ready for another; and that, if the cities in which they are held can afford to have them, the rest of the world can afford to go to them. But this weary view of great fairs is undiscerning.

The Louisiana Purchase fair has a reason for being that no preceding exposition had; for, celebrating our greatest expansion of territory, it comes aptly, at a time when we are in an expansive mood. The people are richer than they ever were before; our industrial grasp is firmer and wider; we regard all the world as our market; and we are ourselves as alert to learn each other's triumphs of mechanism and organization as the rest of the industrial world is to learn of us. There ought to be, and doubtless there will be, at St. Louis such an object-lesson in the application of science and skill to industry as was never before seen.

And foreign nations will send more things than were ever seen at a fair before. There is, of course, a very much keener interest in American industry than any preceding fair could profit by; and Mr. Francis, the President of the fair, recently gave such an impressive and effective invitation to the principal European countries, by personal interviews with their rulers, as was never heard of before. "This interest in the fair shown by the rulers of Europe," he recently said with good humor, "will cause New York and other eastern communities to wake up. I went abroad in order to reach our own eastern States."

The mere bigness of the fair, the total cost of which will be $40,000,000, is very strikingly shown by these comparisons:

	Acres Covered
Philadelphia Centennial (1876)	236
World's Fair, Chicago (1893)	633
Paris Exposition (1900)	336
St. Louis World's Fair (1904)	1,180

But miles and more weary miles of mere "exhibits" never made a fair. The intelligent visitor will expect to see processes and

instructive and beautiful products, not merely a succession of all sorts of things piled up for advertising purposes.

THE AMAZING GROWTH OF NEW YORK CITY

THE rapid physical changes that are taking place in New York City almost baffle comprehension; and they are interesting for more than local reasons because the growth of New York is but an index to the growth of the whole country.

The complete change in the city's appearance within a decade or less by the building of "sky-scrapers" for business uses downtown and for apartments uptown; the construction of an underground electric railway, now nearing practical operation; the enormous increase of the day population; the building of new bridges to Brooklyn, and the colossal plan of the Pennsylvania Railroad Company to come to Manhattan Island by a great tunnel, and to construct a terminal on Long Island which will be reached by another tunnel under the East River—to these the public has adjusted its thought.

But these are not all. The projected tunnels to Brooklyn, and even to Staten Island; the additional underground railroad which will soon be required; the practical removal (so far as they impede travel) of the two great streams on either side of Manhattan Island; the gradual moving of the centre of population across the East River to Brooklyn; the unprecedented building of great office "sky-scrapers" as far uptown as Forty-fourth Street; the development of easy transit so that Philadelphia, as a serious man remarked the other day, will become a mere suburb of New York; the serious declaration by Professor Giddings, the economist, that "in fifty or seventy-five years, at the rate at which the country is now being settled, it is probable that we shall have a continuous city from Lynn, Mass., to Mount Vernon, Va."; the present rapid extension of New York City on Long Island and northward—by these changes Manhattan will within an early time become chiefly a place of business and a place of pleasure—a great office and a great playhouse, with tenements for the very rich and for the very poor. The transportation of the millions that now come and go every day has presented new problems in engineering and brand new tasks in rapid transit.

The rebuilders of the city are doing fundamental work in other ways, too. The State will vote next fall on the proposition to appropriate $101,000,000 for making the old Erie Canal (which first gave New York its commercial supremacy) again a great waterway. The United States Government is spending large sums in harbor improvements, and the city is increasing its water-supply at a great cost. Men now living will see it the greatest centre of population and of activity and of wealth in the world. And this growth and improvement, which in cost and variety and extent outrun the experience of any city on earth, are but evidences of the development of the whole country. A man who knew New York City ten years ago will hardly believe what he may see ten years hence. So, too, a man who had an accurate conception of the activity and of the productivity and of the wealth of the United States ten years ago will hardly believe the revelations of the next decade.

And all sorts of personal, social, political and educational problems that civilization has yet developed and confronted obtrude themselves, calling for such skill and wisdom as have not hitherto been demanded by any community. The most alert imagination may run riot and become weary before it grasps even the obvious aspects of the wonderful city and its life.

UNPRECEDENTED IMMIGRATION AND ITS CHARACTER

IMMIGRANTS are coming to the United States in a greater swarm than ever before. In 1882 we received nearly 789,000—the largest number that has ever yet come in one year; but the newcomers are expected to reach 800,000 in 1903.

Most of them come from Italy and eastern Europe. So many of them are Italians that, if they continue to settle in New York as they have settled there during the last decade, the Italian population of the city will soon be larger than the population of Rome; and the citizens of New York may look forward to the possibility of two-thirds as many Italians among them as there are white natives of the United States born of native parents. There are in the city native whites born of native parents less than three-quarters of a million—on Manhattan Island less than seventeen per cent.

The decade of largest immigration to our shores was the decade from 1880 to 1890. The present decade, if this present volume continue, will bring us more—as many as 6,000,000, perhaps.

An amended and somewhat stricter immigration law has gone into effect. But it will not exclude many, for illiteracy was not made a bar to entry when the law was amended. The chief amendment of the law is the provision whereby a prohibited immigrant may now not only be stopped at the port of entry, but he may be sent back from any part of the United States within three years after landing, and within two years wholly at the expense of the steamship company that brought him. During the last fiscal year only one hundred and seventy-five persons were turned back at the immigrant station at New York. The new law also enlarges somewhat the prohibited classes, and it imposes a tax of $2 instead of $1. The clause prohibiting anarchists is very carefully drawn. It freely admits every proper person from any land—we shall still give refuge to the oppressed and opportunity to the ambitious. But whether it will exclude all the unfit whom the Old World governments assist to come, or whom energetic steamship agents procure, is doubtful.

The Immigration Restriction League has estimated that twenty-eight per cent. of the 650,000 immigrants that came last year are illiterate, and that forty-four per cent. of the southern European immigrants are unable to read and write. The effort will be continued so to amend the law as to require an educational qualification for admission.

THE THRIFT OF NEW ENGLAND AND THE THRIFT OF THE WEST

THE proportion of men and women who retire on small competencies is doubtless greater in Massachusetts than in any other State in the Union, unless it be Pennsylvania, which is the other State of Doctor Benjamin Franklin's residence. But a man who has even the most robust respect for the thrift of the people of Massachusetts must be surprised to learn from the report of the State's Bureau of Labor Statistics that there are more than 45,000 such persons—28,000 men and 17,000 women. Two-thirds of them are native born, too.

The making of such an investigation was characteristic of Massachusetts. These persons who have retired on competencies are apparently not, as a rule, the owners of large fortunes. Indeed, most men of large fortunes, it is safe to say, do not retire till physical infirmities compel them. In the list are an amazing number who were farmers —more than 3,500—whereas less than 3,300 were merchants. Even the retired blacksmiths number 359, and there are 1,076 "laborers" on this list. This table is instructive, therefore, not as an indication of riches, but rather of thrift. There are, for example, a considerable number of preachers who have retired and have a competence.

But it tells volumes about the careful management that is a part of the New England temperament. Any one who has lived in different parts of the United States has had many occasions to observe what this official report confirms—that the native New Englander has learned the art of living considerably below his income better than any other man among us.

In many of the western States (Iowa and Kansas, for example) probably quite as large a proportion of the people are well-to-do as in Massachusetts; but they have not yet developed an hereditary habit of saving. They yet have no hereditary habits, in fact—as Iowans and Kansans. In their more cheerful life they do not expect rainy days. Their habit is to make, rather than to save.

For the West—or what New Englanders yet call the West—to all its agricultural wealth is adding enormous wealth from manufactures. In the general diffusion of well-being, if it has not already passed New England, it soon will do so. It takes one's breath away, for instance, to recall that Kansas City (population 163,752) has just been celebrating the fiftieth anniversary of its incorporation. It was a mere landing-place on the Missouri River half a century ago, where 250 hardy persons lived. Now it is a great city, built with wisdom enough to have reserved 2,000 acres for parks, and that, too, without debt.

The great manufacturing interests of the West show the temper of the people; for the number of factories is enormous. This means that the farmer is himself also a manufacturer. He turns his money to many forms of production, and he keeps the farm in cultivation, too. It never occurs to him to retire.

He is not working for a mere competency. He is working for the love of it and to develop the country. The pioneer energy of a generation or two ago has not yet spent itself.

The great industries have brought great fortunes everywhere. But very much more interesting than great fortunes are the habits of the mass of people in using wealth. And the habit of the West, while less safe at times for individuals than the New England habit, is better for the community. On the same income a man in Iowa or in Kansas will live better (or "faster," if you will) than a man in Massachusetts. He is more daring, more certain that soil or factory will continue to give good yields; and he is more ambitious. He spends his money now—let his children earn it for themselves, if need be; and he spends it more freely on his children because they will be sure to earn more.

What an admirably varied and economically well-balanced people we have as we enter upon the era of great wealth-getting that we are just now approaching! We have the sort of ability shown in the management of small competencies, especially in New England; and we have the faculty also of free spending for future profits. Neither the country nor the people are yet half developed. But, when the period of full development comes, it looks as if our democracy will know both how to conserve and how to use wisely the wealth that our industrial supremacy will bring.

A GROUP OF TIMELY PORTRAITS

THE uniform and continuous distinguished service as our Ambassador that Mr. Choate is doing to cement the cordial relations between the United States and England; the historic significance of the bill introduced in Parliament by Mr. Wyndham for making Irish tenants landholders; the fitness of the appointment of Mr. Wayne MacVeagh as our representative at the Hague in the matter of the Venezuela trouble; the extraordinary work of a fundamental nature done by Mr. Robertson in Canada for rural education; and the coming of the new Chinese Minister to the United States, Sir Liang-Chen-Tung, the successor of Wu Ting Fang, of cheerful and unfading memory, make their portraits at this time both pertinent and interesting.

ARE THE BASES OF OUR PROSPERITY SECURE?

[THE WORLD'S WORK publishes every month an article in which some timely and vital subject of the financial world is taken up]

THE London *Times* recently declared that in our remarkable national expansion we have violated economic laws and must suffer the penalty. We have, to use its phrase, "bitten off more than we can chew." There was much of this kind of talk at the beginning of 1902, and there has been still more of it at the beginning of this year. It is by no means confined to European observers of the American situation. One of the greatest financial authorities in this country, a man of national reputation, recently said in reply to an inquiry about the effect of the failure of the Aldrich bill to abolish the old Sub-Treasury system of locking up money, "In my opinion, nothing can prevent a money panic this year, except a failure of the crops." In view of all this continued talk, it is timely to consider the foundations of our continued prosperity.

It is not needful to recite the marvelous story of our national prosperity in the past few years. What is of more pertinent interest is that there are no signs of retrogression since this year began. Industrial progress continues. There is no indication of any exhaustion of the soil. Our government is financially stronger than any other of the great powers. The resources of the country have not been fully developed. For every five acres of land in actual use there is one acre awaiting only water to make it fruitful in abundance. We are still a young country and have not yet attained the maturity of our powers. It is foolish to talk about our having stopped growing.

There are usually two excellent barometers of our national prosperity: the bank clearings and the railroad earnings. During the last fiscal year, the clearing-house exchanges of the country amounted to $116,021,618,003, a gain over the preceding year of $1,201,825,917. Allowing for the reduction in the volume of speculation, there has been a steady increase since then. During the last calendar year, railroad earnings gained $82,000,000. There has been a constant gain since then. That there has been a slight decrease in net earnings due to the higher cost of operation, resulting largely from increased wages, does not alter the fact of an increased volume of business. Besides, the railroads as a whole are now reporting increased net earnings. The gain in February was 5⅛ per cent. Much has been said of a falling off in our merchandise exports and of an increase in imports, but the February exports were the largest on record for that month, as were also the exports for the three months ending with February. While the excess of exports for the seven months of the fiscal year was the smallest in seven years, the gain in the last three months indicates that the excess for the full fiscal year will be nearly as large as last year.

Inquire of any banker having relations with the merchants, and the invariable information is that their customers are doing a very active and prosperous business. Indeed, they are so busy that they need more money to finance the business coming to them. The United States Steel Corporation recently reported that it had on its books unfilled orders for more than 5,410,719 tons of steel. The net earnings of the immense corporation for the first quarter of this year were $24,656,136, notwithstanding some loss due to railroad congestion. This year, 16,316 miles of new railroad construction have been contracted for, as compared with 6,026 miles actually built in 1902.

Business is so active as to produce a severe congestion in two directions. The movement of products to the markets has been so great that the leading railroads East and West have suffered from freight blockades. The Pennsylvania Railroad was obliged for a time to retire its fastest passenger train between New York and Chicago in order to clear the tracks for accumulated freight. It was said in the New York Chamber of Commerce, a few weeks ago, that even with the enlargement of the Erie Canal, on the 1,000-ton-barge plan, and the extensive railroad improvements recently authorized, the railroads and the canal combined would not afford the necessary facilities for transporting the products of the country to the Atlantic seaboard at New York. Such a prediction, in such a place, does not indicate any prospect of an early decline in our national prosperity.

The congestion in the money market is due in no small part to the increased demand for credit as a result of the immense trade activity. Leading Chicago bankers have attributed the augmented demand for money there to the freight blockades that have delayed the marketing of products. The business men and farmers needed additional funds to tide them over until their freight reached its destination and they could receive their pay.

Statistics might be given *ad infinitum* to show the continued growth of the country. The national banks have increased their capital from $667,381,231 in 1902 to $731,275,267 in 1903. The national bank deposits increased from $4,374,740,459 to $4,580,927,529 in the same period.

In whatever direction we turn, therefore, we see the evidences of prosperity. Business, according to competent authorities, is not only active but sound. There are only three unfavorable conditions that threaten it. The first is the stringency in the money market. The second is the labor disputes, of which there have been so many of late. But it should be remembered that these are "prosperity strikes." They are the attempts of labor to obtain a larger share of the admittedly great profits of business. Moreover, the labor-unions are not becoming more exorbitant in their demands, and the present conditions are by no means acute. The able report of the Roosevelt anthracite coal commission in laying down the vital principles underlying the labor problem seems to open the door to a better understanding between employer and employee.

The third condition that threatens is the indulgence in outside speculations by business men. Such weak spots as have developed, or as may hereafter be disclosed, are due chiefly to this cause.

A crop failure would be a severe blow to business, but there is no reason to expect

such a calamity; and moreover, it should not be forgotten that the failure of the corn crop in 1901 did not cause a panic.

The only serious feature of the business situation is the congestion in the credit market, and this is felt most in Wall Street, where most of the abuses against credit have been practised. It is this congestion which has given rise to so much discussion of a possible monetary convulsion. It is this condition which more than anything else causes the London *Times* to speak of the day of reckoning for each occasion of economic debauch in this country. And so vast is the pyramid of credit that if the money stringency became so acute as to produce a panic the entire business of the United States might possibly be involved in the convulsion.

The activity in trade has already been alluded to as one cause of the congestion in credits. The higher the prices and the larger the trade movement the more credit required. In spite of the fact that the per capita circulation of money is now in excess of $29, it seems clear that the business of the country was growing faster than the facilities for handling it. Still the sources of credit-supply would have been ample but for the demands of overspeculation. It is in our speculative ventures that we have "bitten off more than we can chew."

We have become a nation of speculators. The passion for gambling in stocks, grain and cotton has spread over the whole land. It has invaded the rural neighborhoods and taken possession of men, women and even children. A seat in the New York Stock Exchange recently sold for $82,000. Eight years ago it could have been bought for $13,000. How far the mania to get rich quick by processes that violate the ancient law of earning one's bread by the sweat of one's brow has corrupted our national life is open to question. It is, however, to be noted that, while trade keeps up its rapid pace, speculation is beginning to lag. Sales of stocks, which amounted to 252,000,000 shares in 1901, fell to 188,000,000 shares in 1902. There has been no increase in stock operations this year, while bond sales have fallen off greatly This reaction in speculation is regarded by some as prophetic of a decline in trade. It should rather be hailed as affording relief to the overburdened money market.

But speculation has not been confined merely to the New York Stock Exchange. There has been great syndicate speculation in the organization of new companies and the floating of new securities. Trust companies and other financial institutions, as well as private bankers, entered into these underwriting speculations by the wholesale. When it is said that at the beginning of this year there were 793 industrial trusts and natural monopolies, having a total capitalization of $13,750,734,517, some idea is obtained of the mass of stocks and bonds existing, other than railroad securities, of which there has been an immense increase. In the last three years the additions to the listed and unlisted departments of the New York Stock Exchange have aggregated $5,600,497,201. This is nearly one-third of the total amount of securities now admitted to dealings in the Exchange. Not only this, but there has been authorized by 120 companies, in the last six months, new capitalization of more than $1,500,000,000. We now begin to obtain some conception of the enormous burden imposed on the credit capacity of the country.

Part of the recent increase of capital represents the legitimate demands of the railroads seeking to create the new transportation facilities demanded by the business expansion Seven railroads have lately voted to issue $230,000,000 of new securities.

There has been far too much underwriting of companies with inflated capital. It is difficult to get comprehensive statistics covering this point, but the twelfth census reported 183 industrial companies whose stocks and bonds, amounting to $3,085,200,868, represented only $1,458,522,573 in actual value in money or property.

Of course par values represent very little in a study of this kind. What is important is to know the market price at which the mass of new securities was placed. But it is enough to learn that we have been unable to digest the vast volume of new capitalization placed on the market, and that many underwriting syndicates have had left on their hands millions of securities which they are obliged to carry awaiting a favorable opportunity to sell No wonder that the reservoirs of credit have been drained, and that the rates of interest which a few years ago seemed permanently on a basis below 4 per cent. are now between 5 and 6 per cent ,

and that capitalists find it more profitable to loan money than to invest it in bonds. A readjustment of values to the higher rates of interest is in progress. It is possible that we shall have a rest for awhile from the creation of big companies. J. Pierpont Morgan, in a recent interview, said that the undigested securities would be absorbed without trouble. There has recently been some foreign demand for our bonds.

Last fall during the movement of the crops the surplus reserves of the New York Clearing-House banks were wiped out, and it took heroic measures on the part of Secretary Shaw to save the country from severe monetary disturbance; and even then the leading banks had to form a $50,000,000 pool as an assurance to the public of their ability to meet any emergency. In March of this year there was another pinch in the money market, and the surplus reserves fell almost to the line of the legal requirement. During the summer there should be a period of comparative ease, but there is no disguise made of the apprehension of another crisis next fall. The advocates of the Aldrich bill boldly proclaimed this danger as an argument for the passage of the bill in the Senate. Its failure has had a depressing effect on the markets. The situation is undoubtedly one of great sensitiveness, calling for caution. The important point is that everybody is on guard and that gradual speculative liquidation is in progress.

But suppose there should be a monetary panic, what could we reasonably expect? The pessimistic utterances of the London *Times* have been quoted. It is a pleasure to turn to what our optimistic friend, the London *Statist*, says:

> In past periods of uncertainty and uneasiness foreign capital has been first to take alarm, and to be withdrawn from the country. In future crises the situation will be materially modified. In the first place, America now possesses a considerable quantity of foreign securities, which can, if necessary, be sold to foreign investors, and can be used for making repayments to the foreign investor who insists on withdrawing his capital. Secondly, the proportion of foreign capital now invested in the States in proportion to the total capital is relatively small, and consists, moreover, chiefly of investments whose security cannot be questioned. Consequently there is unlikely to be any large withdrawal of capital from the United States even in a period of bad crops and depression. On the contrary, it is probable that European capital will tend to flow into high-class American investments, now that the financial strength and security of the investments are becoming more and more widely appreciated."

Just as the western farmers have been able to pay off the mortgages on their farms, thus freeing themselves from their eastern creditors, so the people of the United States have bought from Europe the certificates of their own indebtedness and are no longer under the financial domination of London, Paris and Berlin. Our standing abroad was never so high as it is now, and we have no difficulty in borrowing from Europe whenever we desire. In case of a panic we could buy as much gold abroad as we should want to increase our cash reserves. One thing is certain: we shall never again be compelled to issue clearing-house loan certificates, as has been done in the last five panics. This was openly stated, with marks of general approval, in a recent clearing-house meeting by ex-Comptroller Hepburn. Our banks are stronger and better directed than ever before. Many of them have greatly augmented their capital and resources. Seven powerful chains of banks and trust companies have been formed. New lines of defense against panic have been established, so that if "a wave of irrational alarm" strikes us its power for evil will be greatly reduced.

It is one of the hopeful signs of the financial situation that there is so much talk about the danger of hard times. For a panic feared is usually a panic averted. Despite the commonly accepted theory of the regular recurrence of panics, they do not come with the arithmetical precision of eclipses. Secretary Shaw was recently reported as saying, apropos of the prevailing stringency in money: "Last fall I was hopeful, but feared; this year I fear, therefore I hope." There is a great truth in this. "A panic," says Professor Sumner, "is a wave of emotion, apprehension and alarm which is more or less irrational." A danger foreseen, therefore, is not likely to develop into such a wave of irrational alarm. It is one of the safeguards of the present situation that the things that might produce disturbance and disaster are known. Already a reduction in the volume of speculation is taking place, and the banks, while facilitating legitimate business to the utmost, are displaying a wise conservatism toward new underwriting schemes.

THE LOUISIANA PURCHASE

THE RESULTS OF JEFFERSON'S BARGAIN WITH NAPOLEON—THE GREAT PART THAT THE STATES AND TERRITORIES OF THE OLD LOUISIANA ANNEXATION IN 1803 NOW PLAY IN THE WORLD—THE GREAT GARDEN OF THE CONTINENT

BY

CHARLES M. HARVEY

THE treaty we have just signed has not been brought about by finesse nor dictated by force. Equally advantageous to both the contracting parties, it will change vast solitudes into a flourishing country. To-day the United States take their place among the powers of the first rank."

The prophet was Robert R. Livingston, our Minister to France; the occasion was the signing of the treaty by which Napoleon transferred the Louisiana province to the United States, for $15,000,000. Its area is 875,000 square miles (almost as great as that of England, Ireland, Scotland, Wales, France, Germany, Spain, the Netherlands, Italy and Switzerland), as compared with 820,944 square miles in the original thirteen States. It extends from the Mississippi River on the east (including the New Orleans district east of the Mississippi) to the main divide of the Rocky Mountains and to the Arkansas, the Red and the Sabine rivers on the west; and from the Gulf of Mexico to the Canadian line.

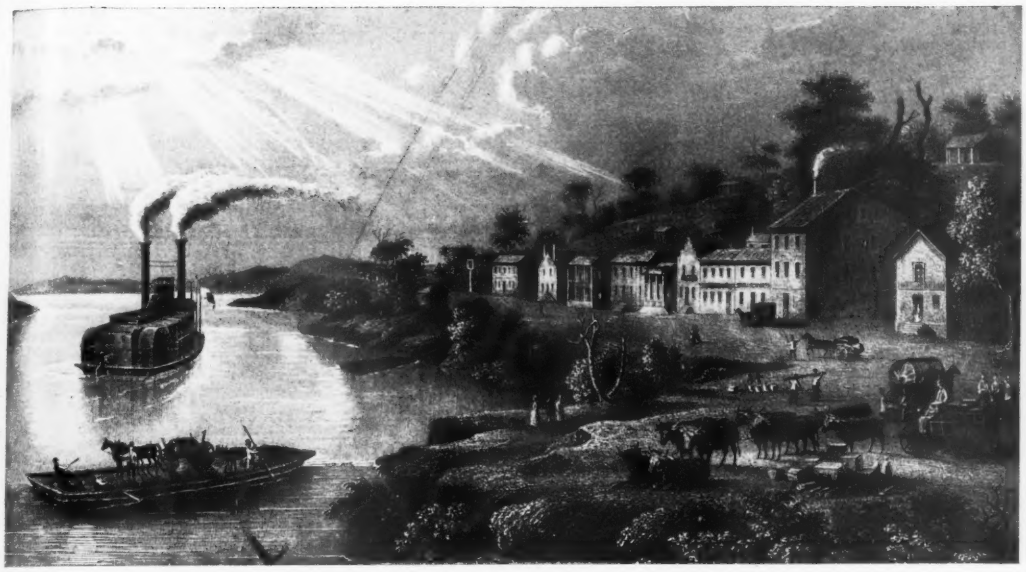
Mr. Livingston made this prophecy to James Monroe, Jefferson's special delegate to assist Livingston in attempting to carry out Jefferson's project to buy New Orleans and West Florida from France, and Barbe Marbois, France's Finance Minister and Napoleon's personal representative in the sale of Louisiana, who had both just signed the treaty of cession. This was at Paris, on April 30, 1803.

The results of this transaction were to prevent forever the erection of a hostile power on the west bank of the Mississippi and to make inevitable the ultimate annexation of Texas, Oregon, New Mexico and California, and the expansion of the United States into a nation of continental proportions and of world-influence. It was perhaps the most important sale of territory ever made.

Jefferson, who wanted New Orleans in order to control the mouth of the Mississippi on the east side, and who told Monroe to guarantee to Napoleon all the territory west of the Mississippi if this inducement became necessary in order to get that town, got the town and that territory, too. Looking for a city, he had an empire thrust upon him. Napoleon's necessities—his war with England, his desire for money to aid in prosecuting the war, his determination that England should not gain the territory, and his wish to raise up a rival to England on sea and land—worked to the eternal advancement of the United States, of representative institutions, and of the world's progress. April 30, 1803, is a great datemark in the annals of America, of civilization and of humanity itself.

It is this event that all the world is preparing to celebrate by an International Exposition at St. Louis, the principal city of the purchase, in 1904. A considerable part of the American people, with the pride, pomp and circumstance of military and naval participation, headed by President Roosevelt, will, on April 30, 1903, the centenary of the event, take part in the dedication of the grounds on which the exposition is to be held.

The wilderness which Jefferson's enemies ridiculed him for buying comprises today, in whole or part, chiefly in whole, twelve States —Louisiana, Arkansas, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Wyoming and Montana—and Oklahoma and the Indian Territory. This region is nearly a third of the area of the present United States, and it gives homes to almost a fifth of its inhabitants. Its population of 50,000 in 1803 had expanded to 14,708,616 in 1900, or nearly three times the population of the entire United States in 1800, and nearly four times the whole country's population at the time Washington was first inaugurated as President.



A SCENE IN KANSAS IN THE EARLY PART OF THE NINETEENTH CENTURY

THE LOUISIANA PURCHASE TODAY

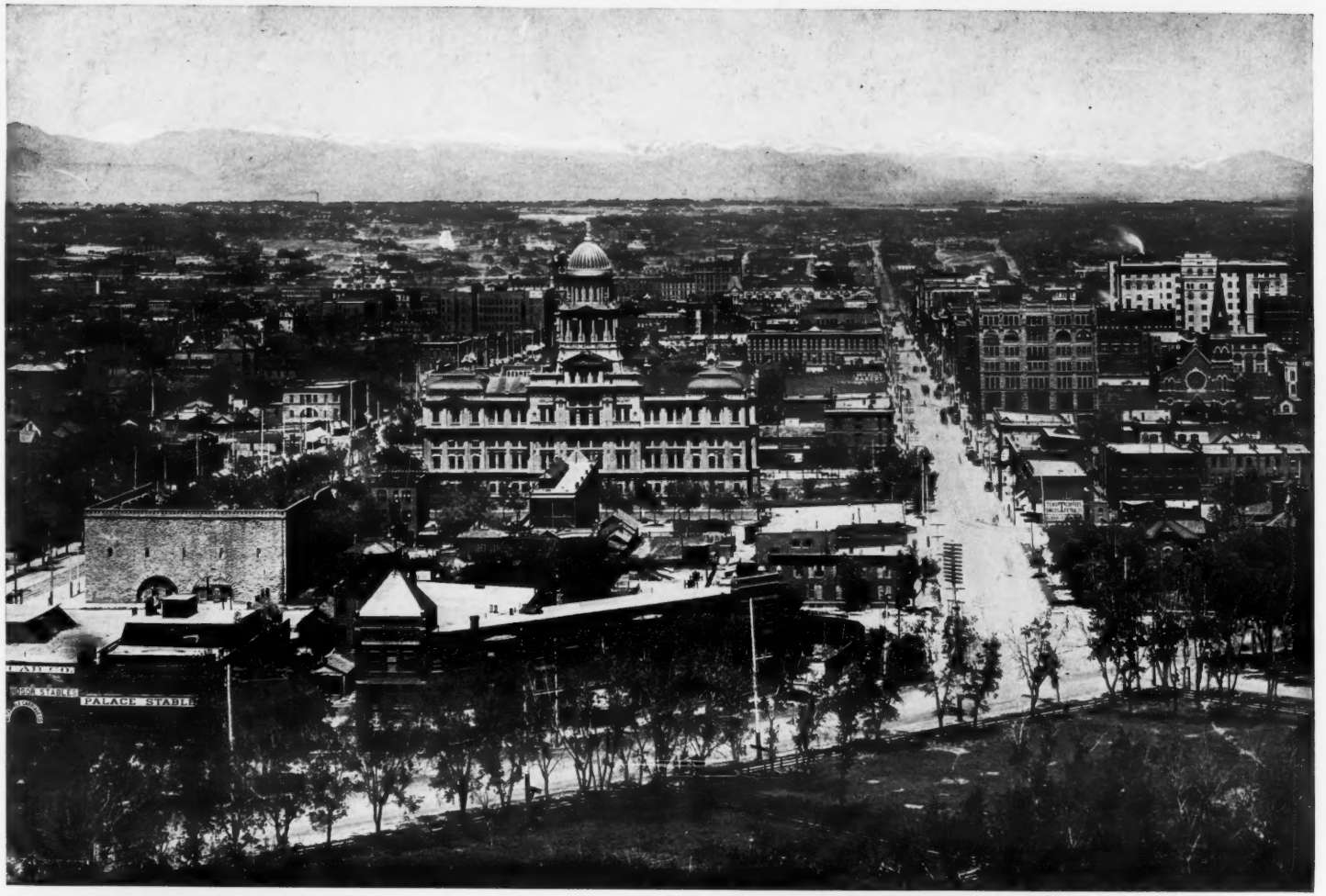
JEFFERSON PAID ABOUT THREE AND ONE-HALF CENTS AN ACRE FOR THE VAST TERRITORY OF THE LOUISIANA PURCHASE. THERE IS NO WAY IN WHICH THE REMARKABLE CHANGES OF THE CENTURY COULD BE MORE FORCIBLY SHOWN PICTORIALLY THAN BY GROUPING TYPICAL VIEWS OF SOME OF THE GREAT CITIES THAT WE HAVE BUILT WITHIN THIS AREA.

IT NOW INCLUDES MUCH OF THE GRANARY OF THE WORLD, FEEDING NOT ONLY THE LARGE POPULATION OF THESE STATES, BUT SUPPLYING THE DEFICIENCIES OF BOTH EUROPE AND ASIA AS WELL.

THE CENTRE OF POPULATION AND OF POLITICAL AND OF INDUSTRIAL POWER OF THE UNION IS FAST MOVING TOWARD THIS AREA; AND SOME OF ITS CITIES ARE THE HOMES OF THE MOST RAPIDLY DEVELOPED MANUFACTURING ACTIVITIES IN THE WORLD.

THE VIEWS THAT FOLLOW GIVE ONLY HINTS OF THIS DEVELOPMENT, UNPARALLELED IN ALL HUMAN ANNALS. OF THE GREAT NUMBER OF TOWNS AND OF THE MANY CITIES IN THIS AREA, REPRESENTATIVE ILLUSTRATIONS ARE HERE PUBLISHED OF ONLY ONE CITY IN EACH STATE WHICH AT A SWIFT GLANCE GIVE THE CONTRAST TO THE WILDERNESS OF A HUNDRED YEARS AGO.

THE LIBERAL ARTS BUILDING AT THE LOUISIANA PURCHASE EXPOSITION



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A VIEW OF DENVER, COLORADO, TOWARD THE ROCKY MOUNTAINS

Photographed by W. G. Walker

WHERE THE RAILROADS CARRY GREAT LOADS OF FREIGHT TO AND FROM CHEYENNE

A FAMOUS INDIAN POST BECOME A BUSY COMMERCIAL CENTRE. CHEYENNE, WYOMING

BUTTE, MONTANA, THE GREATEST COPPER MINING TOWN IN THE WORLD AND A CAPITAL OF VARIED COMMERCIAL ENTERPRISES

TOWARD THE FARTHEST WEST

A typical block in Anaconda, Montana, in the northwest corner of the Louisiana Purchase

Copyright, 1900, by the Detroit Photographic Company

DEADWOOD, SOUTH DAKOTA
The mining centre of the Black Hills

A BUSY STREET IN SIOUX FALLS, SOUTH DAKOTA

ONE OF THE COMMANDING BUILDINGS OF MINNEAPOLIS

Copyright, 1902, by the Detroit Photographic Company

ST. PAUL, MINNESOTA, FROM THE MISSISSIPPI RIVER

THE COTTON MARKET AT ARDMORE, INDIAN TERRITORY

OKLAHOMA CITY, OKLAHOMA
As it was in April, 1889

OKLAHOMA CITY TODAY

THE MOST QUICKLY BUILT CITY IN THE LOUISIANA PURCHASE
Another view of Oklahoma City

Photographed by George Stark

MODERN SKY-SCRAPERS IN ST. LOUIS

Photographed by George Stark

ONE OF THE CANYON-LIKE BUSINESS STREETS OF ST. LOUIS

Photographed by F. C. Lutes

A BUSY DAY IN TOPEKA, KANSAS

Photographed by F. C. Lutes

A BIRD'S-EYE VIEW OF TOPEKA, KANSAS

Copyright, 1900, by the Detroit Photographic Company

OMAHA, NEBRASKA, ONE OF THE GREATEST COMMERCIAL CENTRES IN THE LOUISIANA PURCHASE

COTTON IN THE STREETS OF LITTLE ROCK, ARKANSAS
Coming in from the fields for shipment over the railroads

ONE OF THE BUSY STREETS OF LITTLE ROCK, ARKANSAS

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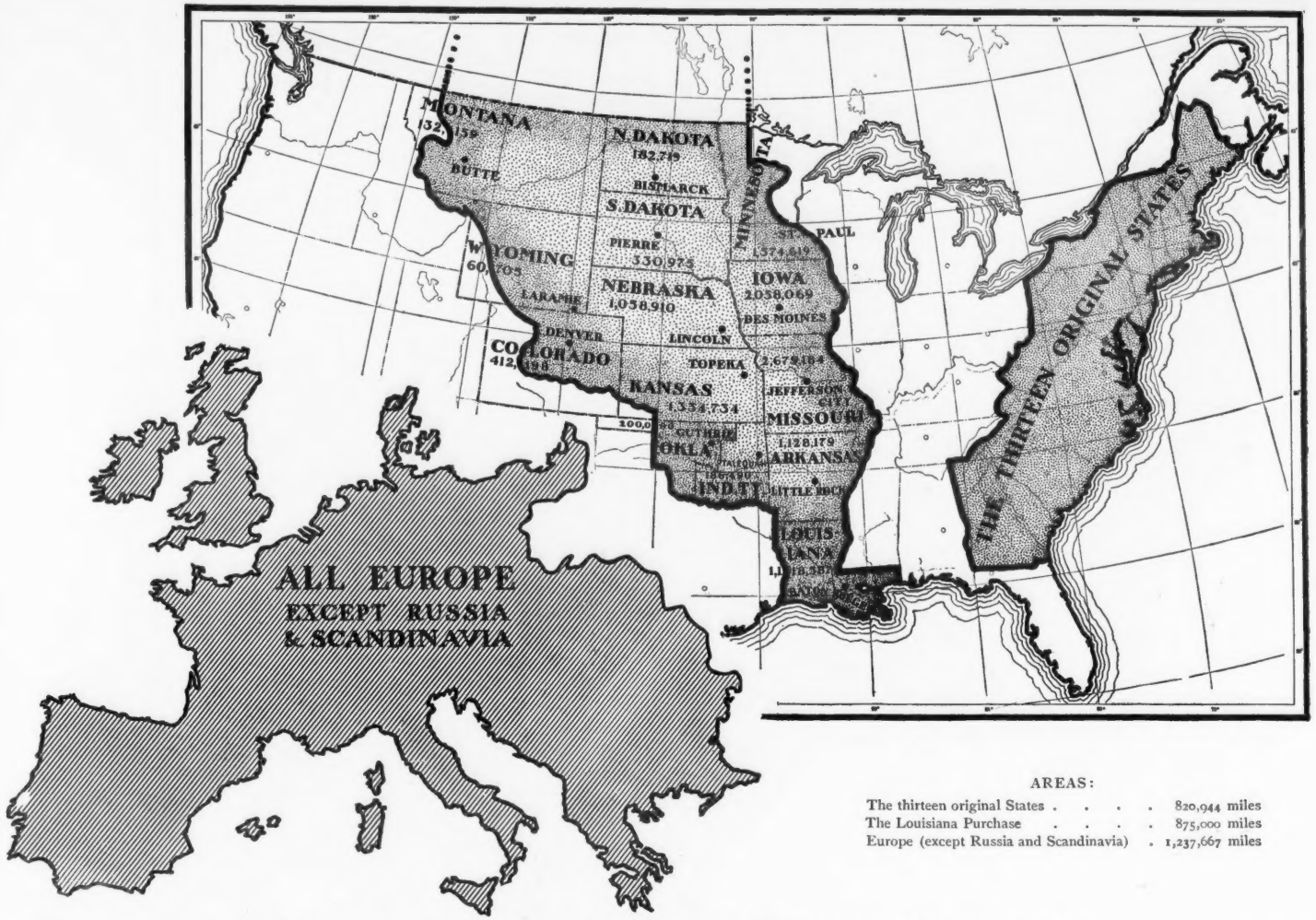
THE COTTON EXCHANGE, NEW ORLEANS, LOUISIANA

The centre of the great industry in the southern portion of the Louisiana Purchase

By courtesy of the Great Northern Railroad

A MODERN HOTEL IN GRAND FORKS, NORTH DAKOTA



AREAS:

The thirteen original States	820,944 miles
The Louisiana Purchase	875,000 miles
Europe (except Russia and Scandinavia)	1,237,667 miles

THE LOUISIANA PURCHASE, THE THIRTEEN ORIGINAL STATES, AND EUROPE

Population of the thirteen original States in 1790	3,819,876
Population of the Louisiana Purchase in 1900	14,708,616

One of the Louisiana province's States, Missouri, alone has more inhabitants than were in the whole of the thirteen States at the time they won their independence at Yorktown. St. Louis, which had only 1,000 inhabitants at the time of the annexation a century ago, had almost three times as many people in 1900 as were in New York, Philadelphia, Boston and all the rest of the country's cities in 1800.

The States and Territories of the Purchase produced 264,000,000 bushels of wheat in 1900, valued at $152,000,000—more than half of the wheat crop of the whole United States; 1,013,000,000 bushels of corn, or forty-eight per cent. of the country's product; thirty-eight per cent. of the country's oats. The wheat, corn, oats, rye, barley, cotton, hay and potatoes produced in this region in 1900 brought $755,000,000, and its farm animals were valued at $825,000,000, thirty-eight per cent. of those of the whole country.

From that celebrated pioneer experiment in wheat-growing by Oliver Dalrymple, a wealthy Minnesota farmer, in the Territory of Dakota in 1876, quickly came magnificent results. In 1902 North Dakota stood second in the list of wheat-producing States and Minnesota first. These with Missouri, South Dakota, Nebraska and Kansas, all in the Louisiana Purchase, led all the rest of the country last year in wheat-growing. Much more than half of the country's 670,000,000 bushels grown in 1902 (valued at $422,000,000) was grown in the States of the old Jefferson tract.

And the story of corn is similar. Illinois stood first in corn yield in 1902, as in most years. The four Louisiana States of Iowa, Missouri, Nebraska and Kansas led all the rest of the country. More than half the country's corn crop, valued at $1,017,000,000, was produced in the territory of the Purchase. Iowa was second in 1902 in the production of oats, Illinois being first. Another Louisiana State, Minnesota, was second that year in barley production, California leading. Iowa was second in hay, New York heading the list. Two-thirds of the country's 195,800 tons' yield of beet sugar for 1902 was grown by the territory west of the Mississippi. Texas, a region which belonged to Louisiana at the time Bonaparte transferred the province to the United States in 1803, but our claim on which was given up to Spain by President Monroe in 1819 as part of the price which we paid for Florida, and which we did not recover until Polk's days in 1845, produces almost a third of the entire country's cotton. Texas, however, is not included in Louisiana in any of the figures given in this article.

The horse and the burro, introduced into Mexico by Cortez and other Spanish adventurers before they appeared elsewhere on the mainland of the New World, and brought northeast as far as Kansas by Coronado almost a century before Captain John Smith founded Jamestown, or Brewster, Bradford and Miles Standish landed at Plymouth, are among the important products of the trans-Mississippi region. The Louisiana province has a third of all that are on the farms of the United States. The Purchase has forty-two per cent. of the cattle found in the whole Union, thirty-one per cent. of the sheep and thirty-four per cent. of the hogs. Montana and Wyoming, among the newest of communities, stand first and second, respectively, among the States in the number of sheep and their production of wool.

One of the dozen States of the Purchase, Colorado, produced more gold in 1902 ($28,000,000) than the entire territory of the present United States produced from the discovery of America in 1492 to James W. Marshall's great strike in the raceway of Sutter's mill, on the American fork of the Sacramento, in 1848. In proportion to its area, the Cripple Creek district in Colorado is the richest piece of gold-bearing ground on the globe except the Rand district in South Africa. Colorado has produced $308,000,000 of gold, $372,000,000 of silver, $116,000,000 of lead and $16,000,000 of copper, or $812,000,000 for these four metals. Montana also in four metals has added much more than $1,000,000,000 to the world's wealth in the less than forty years which have passed since Fairweather, Edgar and their companions made the gold strike on Alder Gulch, the site of the present Virginia City, which started the inrush from all over the world that put Montana on the map. Copper has yielded $391,000,000 for Montana since 1882. Out of its mines have been dug $357,000,000 of silver and $282,000,000 of gold.

In slaughtering and meat-packing Chicago is still far ahead of the other centres, with an aggregate value of product of $249,000,000 for 1900. Kansas City, Kas., which ranks next to Chicago, had a product of $73,000,000.

South Omaha was only a little behind it. While Chicago did forty-five per cent. of the country's wholesale meat-packing in 1890, its proportion had dropped to thirty-five per cent. in 1900. This relative shrinkage was due principally to the immense expansion in this activity which has been made in the States of the Purchase. This industry, following the producing region in the corn and hay belt, is rapidly swinging the centre of this activity into the Louisiana province.

St. Louis, which was only a fur-trading post on the far frontier when Jefferson bought it, was, in 1900, in the gross value of its manufactured product, fourth among the country's cities, leading Boston, which is one of our oldest manufacturing centres. Minneapolis stands first among the country's cities in flouring and grist-mill products.

The wool product of the Louisiana region, which is one of its smallest interests, would, for 1902, more than pay the whole sum which the province cost. The corn yield of one of its States, Iowa, last year would have paid that price more than six times. A single year's manufactures of one of its cities, St. Louis, would pay Jefferson's $15,000,000 price for the whole territory fifteen times over.

Besides transferring the United States' boundaries from the Mississippi ultimately to the Pacific, the Louisiana annexation and its direct results, the acquisition of Texas, of New Mexico, of California and of Oregon, swung the seat of the country's activities across the Alleghanies into the great valley. The geographical centre of the contiguous parts of the United States is in northern Kansas, in the heart of the Louisiana Purchase, and the other pivotal points are traveling rapidly in the same direction. The centre of population, which was a few miles west of Baltimore in 1801, when Jefferson was first inaugurated, was near Columbus, Ind., in 1900; and the centre of manufactures, which was hurrying after it, was close to Mansfield, Ohio, in the same year. At the same time the centre of the corn production was fifty-four miles southwest of Springfield, Ills., and the centre of the number of farms was 110 miles east by south from St. Louis, in Wayne County, Ills., not far from the Louisiana Purchase border.

In 1900 the centres of the production of wheat, of oats and of the country's aggregate cereal crop were all in Iowa. In these four instances the centre, in its westward march, sprang across the Mississippi since 1890, except that the wheat centre made the leap just previous to that year.

This swinging of the United States' productive pivotal points toward the Louisiana territory or into it is rendered especially impressive by the fact that the United States produces thirty-four per cent. of the world's manufactures, thirty-five per cent. of its cattle, fourteen per cent. of its sheep, fifty-two per cent. of its swine, twenty-two per cent. of its wheat and seventy-six per cent. of its corn.

The homestead law, the inrush of immigration thus attracted, the employment of labor-saving machinery and the extension of the railroads all came just in time to make the development of the Purchase the most rapid and remarkable in history. Daniel Freeman, of Beatrice, Gage County, Neb., made his entry in the land office of his district at midnight on January 1, 1863, the moment at which the free-lands act went into operation. His entry was No. 1, his proof of residence was No. 1, his patent was No. 1, recorded on page No. 1 of book No. 1 of the Land Office of the United States. The Louisiana region which got the first allotment under the homestead act has received a majority of those made under that law to this day. Even in 1902 there were 188,445 entries—original, final and commutation—representing probably something like 500,000 persons, under the homestead act, and covering 19,482,000 acres. This represented an area slightly larger than the land surface of South Carolina, and a population in excess of that of Rhode Island, Oregon, New Hampshire, South Dakota, or any one of fourteen other States and Territories. It was a single year's work—the greater part of it performed between the Mississippi and the Rockies—of that piece of legislation.

The homestead and other land laws, with a liberality unknown anywhere else, have helped to attract an immigration unexampled in the world's annals. Of the 21,000,000 souls which other countries have added to the population of the United States since 1821, 5,000,000 came in the forty-one years ending with 1862, the year in which President Lincoln placed his signature to the free-homes law, and 16,000,000 have come since.

In the distances covered, the physical

THE PRODUCTS OF THE LOUISIANA PURCHASE AND OF THE UNITED STATES

THE LOUISIANA PURCHASE IN 1900:

Wheat	263,560,935 bushels
Corn	1,011,932,967 "
Oats	70,367,489 "
Farm Animals, valued at	$825,000,000
Copper. Montana alone	113,598 tons

THE UNITED STATES IN 1900:

Wheat	522,229,505 bushels
Corn	2,105,102,516 "
Oats	809,125,989 "
Farm Animals, valued at	$2,212,756,578
Copper	268,787 tons

obstacles overcome and the immense numbers of persons involved, this 16,000,000 migration into the United States since the enactment of the homestead law makes all previous incursions—the transfer of the Jutes, the Saxons and the Angles to England, the invasion and occupation of Italy, France, Spain and other parts of the old Roman empire shortly before that age by the Goths, the Vandals, the Franks, the Lombards, and the other tribes from the east of the Rhine, and all the rest of the great race invasions of history—look small. And what was deemed to be a calamity in those cases has been a blessing in ours.

In the old Louisiana province there is the greatest number of languages heard anywhere in the world. Out of the 575,000 inhabitants of St. Louis in 1900, Germany contributed 59,000, and almost all the rest of the countries furnished some. In the same year thirty-five per cent. of North Dakota's population, twenty-nine per cent. of Minnesota's, twenty-seven per cent. of Montana's and twenty-two per cent. of South Dakota's were natives of other countries. Almost every race and tongue under the sun are represented in this inpouring of humanity. Yet that seemingly unassimilable mass, which in some localities is deemed to be a serious menace to the country's welfare, is quickly assimilated when it passes west of the Mississippi. There is room enough there for all comers. An equality of opportunity is offered to them all. All soon become good Americans and are absorbed into the citizenship of the nation.

Nearly all those States offer especial social attractions for settlers. In many of them the ballot is granted after a declaration of intention to become a citizen. In most of them only six months' residence is required for voters. Wyoming allows women to vote on an absolute equality with men. It was the pioneer in this innovation, beginning it in 1870, in that community's territorial days. Its Legislature has just passed a resolution that equal suffrage has raised the standard of candidates, has made elections more orderly, has improved the character of legislators and legislation, and has developed womanhood into a broader usefulness. This example has been followed by that other Louisiana State, Colorado, and later by Utah and Idaho, outside that locality. The coeducation of the sexes, which began in Oberlin, Ohio, seventy years ago, is losing some of its friends farther east, but its vogue is increasing west of the big river. In that locality is found the broadest democracy, the fullest liberty, equality and fraternity that the world has seen.

To the sum of the influences which have built up the West the railroads have made a large contribution. That system which had its beginning for the trans-Mississippi region when Mayor Luther M. Kennett, of St. Louis, on the Fourth of July, 1850, broke ground for the line which became the Missouri Pacific, had grown into a total of 56,000 miles of main track for the States and Territories of the Louisiana region at the end of 1902—more than one-quarter of the mileage in the whole United States. The Jefferson tract has at this moment forty per cent. more railway mileage than the entire country had when the rails of Oakes Ames's and C. P. Huntington's Pacific railways met at Promontory Point, in Utah, in 1869, and it has seventy per cent. as much as the whole country had in 1883 when Henry Villard, fifty miles west of Helena, Mont., drove the spike which completed the Northern Pacific, the second of the United States' great transcontinental lines. The railroads have bridged the West's magnificent distances, have abolished the wilderness, have swept Pike's and Long's "Great American Desert" from the map, have brought Cheyenne nearer to New York than Washington was in Jefferson's days and have thrown the valleys of the Columbia and the Sacramento into the circle of the world's interests and activities.

The wild populists of the prairies are as dead as William Wirt's Anti-Masonic Party or John Randolph's Quids. Instead of coupling Wall Street with Lombard Street as enemies of the human race, as they did until recently, Kansas and Nebraska, with their farm mortgages paid, are lending money to Wall Street. The great West, especially Jefferson's section of it, is busy, prosperous, exultant. The country's centre of political gravity is following the westward swing of its great productive forces. Excepting Grover Cleveland, every President—Lincoln Grant, Hayes, Garfield, Harrison and McKinley—who has been elected since Buchanan has come from the Mississippi Valley. In the same period four of the speakers of the

popular branch of Congress—Colfax, Kerr, Keifer and Henderson—have been men from the same region. With the East hostile, as a rule, and the locality between the Alleghanies and the Mississippi indifferent, it was the trans-Mississippi region which dictated President McKinley's Philippine retention policy in 1898. The same locality in 1902, through the State conventions in Kansas, Missouri, Iowa, Minnesota, Colorado, Montana, Texas, Utah, Idaho, Washington and California, have led in putting President Roosevelt forward for the presidency for 1904, compelling many of the States east of the Mississippi to fall into line in his support. It was the region west of the Mississippi that saved the Republican Party from defeat in the Congressional elections in 1902. The same locality forced the passage of the Panama Canal bill, which will change trade channels in the Mississippi Valley into a north-and-south direction from the east-and-west course to and from the Atlantic coast which they have followed hitherto. It was the trans-Mississippi country, particularly the Louisiana part of it, which put the national irrigation act through Congress in 1902, which is expected to divert eventually to that locality much of the stream of American emigration that is now crossing the border into Canada.

The star of empire still moves westward. Sixty years ago Benton declared that the 2,000 settlers then starting from Missouri's frontier for the Pacific coast would open for us the "North American road to India," which he said lay "through the South Pass and the mouth of the Oregon (Columbia)." Two other avenues of access to Asia have been opened since—one by Puget Sound, which was only a geographical expression when Benton spoke, and the other by the Golden Gate, which then was not even a name. All three, fronting on Asia, the densest populated area on the globe, will build seaports from San Diego to Seattle, and will swing the centre of the country's population, activities and wealth far into the broad Louisiana region.

All these achievements and the settlement of this vast area by the most efficient population in the world were rendered inevitable when Napoleon and Jefferson, by the annexation of Louisiana in 1803, placed the American republic on the roll of the world's great powers.

TEACHING FARMERS' CHILDREN ON THE GROUND

THE BEST AMERICAN AND EUROPEAN MODELS UNITED IN THE COMPREHENSIVE REFORM OF CANADIAN COUNTRY SCHOOLS—AN OBJECT LESSON FOR THE WORLD PLANNED BY A MAN WHO HAS BROUGHT SCIENTIFIC RESEARCH HOME TO FARMERS AND TEACHERS

BY

GEORGE ILES

IT is ten o'clock on a winter morning as we enter the school at Cloverdale, a little village forty miles from Montreal. In the porch, thinly built and draughty, we stamp the snow from our boots, and in a moment find ourselves in the one large room of the building. The box-stove, crammed with maple, murmurs in tune with the keen wind outside; it is well that double windows stand between us and the external temperature of eight below zero. The teacher who greets us is just such a young woman of decided intelligence as one sees in a good city school, well bred and well trained. Her pupils are strangely contrasted with those of the schoolrooms of Montreal or New York. Here are twenty-three boys and girls all the way from five to sixteen years of age. In fine weather, the teacher tells us, children as young as four are brought to school, simply

as onlookers, and to be kept from bothering their mothers at home. With versatility worthy of all admiration the teacher passes from task to task. Now she instructs a tot of five as to the differences betwixt C and D, and then explains to that child's eldest sister a problem in the rule of three. In hardly a single study are more than two or three pupils abreast of one another; it must be that the emulation, the helpful companionship in lessons, so common in large graded schools, is here unknown. And let it be remembered that this Cloverdale school, small as it is, has quite as many scholars as the average country school either in Canada or in the United States.

In the State of New York the rural population is, for America, comparatively dense, and yet in 1901 her rural schools had each on an average only twenty-seven pupils; in each of as many as 3,628 of these schools, one-third of the whole, there were but ten pupils or fewer. Such figures display in striking fashion the first evil of rural education whether north or south of the Canadian frontier. The plain remedy is the consolidation of small into large schools, with the transportation of pupils in vans at the expense of the community. This plan originated in Kingsville Township, Ohio, in 1892, and is now legalized for any community in that State desirous of its adoption. Particularly noteworthy is its success in Gustavus Township, where nine little schools have been absorbed in one handsome central school. Instead of nine teachers giving instruction to nine petty groups of children, each one of a staff of five teachers devotes her whole time to courses as well graded as those of a city school. When a score or more in a class of grammar or geography are questioning, answering, reciting in one another's hearing, they learn much that they would otherwise miss. In the Gustavus school the attendance is now ninety per cent. of the enrolment; contrast this with an average of but fifty-seven per cent. in 1891 in the rural schools of Wisconsin and with fifty-five per cent. today in those of Nova Scotia. When pupils are called for in comfortable vans, especially in bad weather, they rarely excuse themselves except when they are ill. The boys and girls thus go to school oftener in the year, and they remain at school for more years than did their less fortunate predecessors. And how about cost? In Wisconsin, where consolidation has been widely adopted, in not a single case is the new expense as much as that of maintaining the isolated and superseded schools. No wonder that twenty States of the Union have introduced this method of bettering their rural education.

But there is more the matter with the ordinary country school than its smallness of scale. At Cloverdale, for example, ask how the fathers of the pupils earn their bread. You will hear that most of them are farmers raising barley, oats and hay; some of them have herds of cows whose milk is sold to the neighboring cheese factory. One man has become well-to-do through his apple orchard, which sends every October a goodly harvest to the Montreal market. Yet that these children come from homes where the livelihood is earned out of the ground is ignored in the lessons. The instruction as far as it goes is good: its staple is reading, writing and arithmetic, with a little grammar, geography and history. This is all. It might do well enough if the boys and girls were all going to be clerks or traders; or if, in the fulness of their ambition, they were to strike out for professional careers. But of sowing and reaping there is never a word; nothing about the planting and tending of trees, the production of milk, butter and cheese. Never, even remotely, does a lesson touch on building or drainage, on the composition of foods or the chemistry of fuel, or light up for so much as a moment the drama of struggle and survival of which every clover patch is a theatre. It is well that children should learn at school useful lessons they can learn nowhere else, but should not the children of the farm be led to see somewhat of the inexhaustible scope for brains which offers itself to the farmer? The fact is, that rural instruction has been largely devised in cities with a view to city conditions, And the courses in city schools are faulty enough, ridden as they are by clerkly traditions which permit the word to usurp the place of the act, instead of being merely its symbol and aid. The second evil in rural education throughout America is the stress laid upon verbal studies, the blinking the actual world of duty and joy for which country children should be informed and trained.

All this has for years pressed itself upon the minds of educators, and notable efforts

here and there are afoot in the field of reform. What makes the situation in Canada of particular interest is that there a scheme of betterment is planned to cover every part of rural education and is sketched upon a scale intended to become national in area. This movement is headed by Professor J. W. Robertson, of Ottawa, Ont., who has for thirteen years been Commissioner of Dairying and for eight years Commissioner of Agriculture for the Dominion. In these capacities he has been by far the most intelligent and effective instructor that rural Canada has ever had. He and his staff, year by year, have taught scientific dairying in the hamlets, villages and towns of Canada. In 1886, when he became professor of dairying at the Ontario Agricultural College, the Dominion exported butter and cheese worth $7,500,000; in 1902 these exports had risen to $25,000,000. His thorough acquaintance with the country schools in every province of Canada convinced him that they urgently needed reform. It was necessary that he should have the coöperation of a man of wealth, of broad intelligence and the utmost public spirit; this coöperation he enjoys from Sir William Macdonald, of Montreal, who at an outlay of $3,000,000 has given to McGill University technological departments as excellent as any in the world.

The programme of reform is to take effect next September, and will begin with consolidation as exemplified in Gustavus Township, Ohio. In each of the old provinces of Canada, Prince Edward Island, Nova Scotia, New Brunswick, Quebec and Ontario will arise a Macdonald Consolidated Rural School. The initial cost of the school, fully appointed, will be met by the Macdonald fund; for three years the same fund will meet the expenses of maintenance and of conveyance beyond the present cost of the little schools to be superseded. In every respect these new schools are intended to be the best of their kind in the world, and are from first to last to be managed by the usually elected school boards of their districts. In each of these same provinces is to be chosen a neighborhood containing five or six rural schools; over each of these groups is to be placed a traveling instructor. Two teachers of proved ability from each province, with a man to spare, eleven in all, are now being trained to take charge of these consolidated schools and the five groups of scattered schools. They began with special courses at the University of Chicago, studying plants, their growth and evolution; at the Agricultural College, Cornell University, they took courses in agriculture, horticulture, dairy husbandry, economic entomology and agricultural chemistry. At the Teachers' College, Columbia University, they studied physiology and elementary physics and heard special lectures on the art of teaching. What are the courses these men are to conduct at home? Nature-study is to be central, with manual training and household science as of equal importance. A garden will surround every school as its appropriate setting. In addition, on plots ten feet square will be planted wheat, potatoes, clover and corn. On patches side by side wheat will be sown from seed selected and unselected. In 1899 Canadian schoolchildren on farms from Prince Edward Island to British Columbia began sowing oats and wheat from selected seed; in three years the gain was twenty-seven per cent. in the weight of oats and twenty-eight per cent. in the weight of spring wheat, the successful competitors receiving $10,000 in prizes from the Macdonald fund. The prize-winners have formed Seed Grain Associations to raise and supply selected seed of prime quality. This enterprise promises as great profit in the grain fields as the application of the same principles have earned in rearing thoroughbred horses and cattle.

Every child at a Macdonald school is to have an outdoor slate on the soil to put living things on to be rubbed out. The successive phases of sprouting, the dip and spread of rootlets, are to be observed day by day, described in writing and illustrated with the pencil. How varieties of soil and of soil enrichment affect a growing crop is to be fully noted. There is to be close observation of the insects which visit plants either as friends or foes. That the rotation of crops is gainful has been the A B C of agricultural science for many years; yet intelligent rotation is much less practiced than it should be. When wheat follows clover it yields from four to six bushels more to the acre than when it follows wheat and finds the soil partly exhausted of wheat-food. Plots are to be cropped in series of four: the first in cereals, as wheat; the second in clover; the third in pasture; the fourth in cultivated

crops, as potatoes or Indian corn. It will be shown that rotation adds at least one-fourth to the gross return of the soil, a lesson not likely to be forgotten when a boy leaves school to cultivate a farm as profitably as he can. The winter lessons will include the chemical side of agriculture, with simple and varied experiments. The year round there will be manual training and courses in household science.

Both boys and girls will thus be put in full possession of themselves; their hands and eyes, their reason, judgment and imagination will have a chance as well as their memory for rules and definitions. The boys will be taught drawing, the use of the carving-tool, the plane, the saw. Girls will be instructed in sewing and cooking, in the elements of housekeeping. At every point the school will be dovetailed into the home, the farm, the workshop, the smithy, the dairy. Let it not be supposed that the farm fence is to bound the horizon of the school or that books are to be neglected. The study of botany will be all the better relished for proceeding upon the observation of growing plants, the care of shrub and tree. The lessons of geography will begin at home, but are not to stay there; the forces which have molded its river-basin or hillside will be explained; then by easy transitions will be studied the causes which have indented so deeply the shores of the Atlantic and hollowed out the chain of great lakes from Port Arthur to the sea. Whatever the theme, it will be plainly shown that much remains unknown, that research and experiment have mighty conquests before them, that knowledge is not dead, or nature a finished thing. So far from culture being ignored, such a scheme as this gives culture a solid basis by developing the rich meaning of homely tasks and homely scenes, and then proceeding from the here and now to the full circle of all that has ever been done or remains to do. And literature will not be neglected: enough good reading will be included in the courses to whet the appetite for more.

The scheme happily begins with prepared ground. Nova Scotia already has nature-study in her schools. Ontario, the most populous and wealthy of the provinces, has at Guelph, forty miles west of Toronto, an Agricultural College of the first rank. Connected with this college is rising a Macdonald Institute for Teachers, to serve also as a residence for women teachers, which will cost $175,000. It will be opened next September and is planned to bring the Agricultural College into close touch with the teachers of rural schools. These teachers will receive short courses in nature-study and domestic economy. No fees will be charged: scholarships with allowances for traveling expenses will be offered. The plant-houses will afford material for nature-study the year round. Nova Scotia is following the example of Ontario and is building an Agricultural College to be effectively partnered with her rural schools. New Brunswick is planning to follow suit; and so is Manitoba, the prairie province, destined, as she is, to attract a vast immigration in the years of the near future. In the normal schools of the Dominion, with aid from the Macdonald fund, manual training is universal; at the cost of the local authorities, domestic science and nature-study are included in the courses of most of these schools and during this year will be extended to the remainder.

Canada within the past six years has made strides in agriculture and industry so amazing as to awaken her people to new hope. They see that their new gains are largely due to bettered education, and they are thoroughly alive to the augmented power still better education stands ready to bestow. Sir William Macdonald's aid extends for three years; at the end of that time it will be for local boards of education and provincial authorities to say whether the new instruction shall be continued and extended or whether there shall be return to the old ways. Three years ago Professor Robertson and Sir William Macdonald joined hands to introduce manual training in the schools of twenty-one Canadian towns and cities. This year eight thousand boys and several hundred teachers are receiving this training. After next June aid from the Macdonald fund will cease. In every case the public authorities concerned have seen to it that the courses shall be maintained. Even more gratifying is the fact that manual training has been adopted by the public schools in twenty other places, the only aid from the Macdonald fund being that it trained the teachers required. Thus has a past master in the art of large giving swept the whole round of education; brought

a university to the foremost rank in applied science and original research; enriched the schools of towns and cities with manual training of the best type; turned to the long-neglected children in the country, and put within their reach the best knowledge and skill, that their lives may have a new prosperity and joy.

American educators will watch with keen interest this work of their friends and neighbors of the North. There has never been in the Union a project of educational reform so inclusive and thoroughly thought out as that now taking form under the guidance of Professor Robertson. The consolidation of country schools is an old story all the way from Massachusetts to Iowa; nature-study has for years been pursued in many hundreds of our rural schools; in not a few States manual training was introduced long ago; and in thousands of girls' classes instruction in household work is part of a well-tested course. Wisconsin, in 1901, offered to pay half the expenses of County Agricultural Schools, the other half to be borne by each county. Marathon County has accordingly established such a school at Wausau, and Dunn County at Menomonie, with generous aid from the Honorable J. H. Stout. But it has remained for Canada to combine as a whole, harmonious and complete, on lines to include a whole people, nature-study, manual training and household science, with consolidation as its basis. Never before has individual enterprise been bold enough to plan a reform in the instruction of a great commonwealth, and pave the way to success by a generous and shrewd appeal to local pride and public spirit.

The work of the man who has devised this remarkable plan is interesting. In 1902 the food products from farms exported from Canada exceeded $80,000,000 in value as against $39,000,000 in 1896. This remarkable showing is chiefly due to advances in education and organization among the farmers, who in turn owe much to Professor Roberston. He was born in Scotland in 1857, came, with his parents, to Canada in 1875, engaged with his father in farming, took up the dairy business, and succeeded so well at it that in 1886 he was appointed Professor of Dairying at the Ontario College of Agriculture at Guelph. In 1890 the Dominion Government, of which Sir John Macdonald was the head, saw the growing importance of the dairying industry and instituted at Ottawa, the Federal capital, the new office of Dairy Commissioner for Canada with Professor Robertson in charge. Then began a series of labors under his direction as noteworthy as any in the annals of applied science.

From the first Professor Robertson has maintained that grain, fodder and hay, when sold by the farmer, carry away vastly more of the accumulated fertility of his land than when these are worked up into dairy products with the aid of brains and common sense. Five pounds of cheese sell for as much as a bushel of wheat and remove from the land scarcely a tithe as much of its plant-food. One hundred dollars' worth of butter bears off from the soil less of its valuable elements than five cents' worth of hay. To an important extent the same is true in rearing pigs and poultry for the market, and here he is never tired of repeating that what may be saved by wise economy may be far exceeded by commanding the highest prices in producing the first qualities. The best brands of bacon, the best chickens, bring prices so much higher than second best that to aim at anything else is to waste time. In plainly worded and illustrated pamphlets he has sent information broadcast regarding the best strains of pigs, sorts of feed, pens and treatment. The result is most gratifying: six years ago Canada exported in hams, bacon and pork $4,500,000 worth; last year the figures were $12,500,000. Nearly treble is a good increase, but twelve times is still better, and that is the rate at which the poultry exports advanced from 1896 to 1902. At Government stations the best strains of chickens have been ascertained as well as the best modes of artificial hatching, rearing, fattening, killing, plucking, shaping and shipping. That fattening pays handsomely came out in experiments at Professor Robertson's own poultry-yard. He says: "I had more cold meat for the table from one fattened chicken than from three chickens unfattened. The cost of feed consumed was six and three-fourth cents per pound of increase in weight." The usual object-lesson is afforded at chicken-fattening stations where the best practice is illustrated and the fattened fowls sent to market.

Cheese-making on factory principles in

1891 was fairly well-established throughout Canada; all that was needed was improvement in details and extension into new territory. But cheese-making is an industry for summer only; why not go into the business of butter-making in winter? In their past practice the farmers had been feeding their cows all winter and getting nothing back, because the cows were dry from November. But to command an enlarged butter market it was imperative to make a better article than the brands commonly produced. Accordingly the art of butter-making in factories in winter was taught with experimental illustrations; the object-lessons were given on a commercial scale. The importance of the utmost cleanliness, of maintaining right temperatures, was insisted upon; then lessons were given in packing and in ensuring against the surface mold which deducts dollars from the market price of a package. Illustration Dairy Stations were established for summer use, always with a view to extend coöperative methods. None were more successful than those of Prince Edward Island. In that smallest of the provinces Professor Robertson, on behalf of the Dominion Government, established in 1892 a round of cheese factories and creameries where butter and cheese were made and marketed as from Government dairies. Five years afterward the Government withdrew, the business having no further need of its fostering care. In 1901 the Island had forty-seven factories, which turned out butter and cheese worth $566,824; contrast these figures with those of ten years before, when four factories had an output of $8,448 worth of cheese and no butter at all. The local government now employs for the Island a traveling instructor in butter- and cheese-making, who visits all the factories frequently and regularly so as to maintain and advance their standards of production. Experiments at other Government dairy stations had proved that when cheese is cured at temperatures not higher than sixty degrees Fahrenheit there is less shrinkage, and its flavor is bettered so much that a cent a pound is added to the market value. The dairy products exported from Canada last year were worth three and a half times as much as in 1886.

THE NAVAL STRENGTH OF THE POWERS

THE ADVANCES IN A SINGLE YEAR BY THE LEADING WORLD POWERS TOWARD SUPERIOR NAVAL EQUIPMENT AND EFFICIENCY

BY

ALBERT GLEAVES

LIEUTENANT-COMMANDER U. S. N.

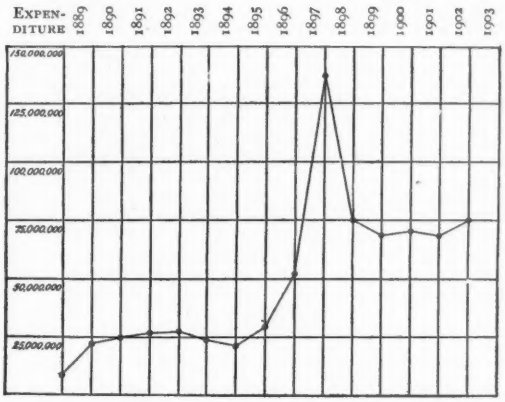
IN the examination of the recent Naval Budgets of the Continental Powers there is food for much reflection. The English estimates for the ensuing year are $172,000,000 as opposed to the current appropriation of $156,000,000. This is to go to the completion of six battle-ships, eleven armored cruisers and eighteen minor vessels, and to the commencement of three battle-ships, four first-class cruisers and three third-class armored cruisers, four scouts, fifteen destroyers and ten submarines, and to the maintenance of 122,500 officers and men.

Germany's appropriation contemplates the construction of two battle-ships, one armored cruiser, two small cruisers and four minor vessels. The building programme of the other powers is not announced. Comparative figures for 1903 are as follows:

	Appropriation for Shipbuilding and Armament	Increase in Armored Tonnage for 1903-04	Personnel 1903
England	$86,750,000	111,800	118,625
United States	46,345,632	60,000	28,000
France	30,312,967	54,781	45,326
Germany	?	66,000	35,685
Russia	20,224,841	67,500	39,306
Italy	5,085,307	63,125	22,335

England's extraordinary expenditure is necessitated by her policy of maintaining a two-Power standard—the United States not being considered a possible enemy. Germany longing for commercial supremacy, France watching the Far East, and Russia still cherishing her hope of centuries for a winter port either in the waters of southern Europe or in the Persian Gulf, are all steadily expanding their fleets in proportion to their needs and ambitions. The United States, although isolated by two oceans from Cabinet discussions of the Old World, is not unmindful of the obligations of the Monroe Doctrine and the possibilities arising from the Panama Canal, and is therefore not inclined to lag in this competition of naval armaments; this is shown by the recent appropriation of $80,000,000 and the authorization of five battle-ships. The suggestion of the General Board to adopt a continuous building programme, coupled with the proposition to add yearly to our fleet four battle-ships and two armored cruisers, with a proportional number of smaller vessels, until our fleet numbers forty-eight battle-ships, is a wise policy which perhaps had its origin in the definite and systematic plan of the German Navy Bill of 1899, which, as amended in June, 1900, is to raise the German fleet to the establishment of thirty-eight battle-ships, fourteen large cruisers and thirty-eight small cruisers.

THE ACTUAL EXPENDITURE UPON THE UNITED STATES NAVY FOR FIFTEEN YEARS



It is difficult to arrive at a comparative strength of the various fleets, as the usual methods of comparison are indeterminate and misleading. For instance, if the base of comparison be tonnage, the list of sea Powers in order of strength will be England, France, Russia, United States, Germany, Italy and Japan. If, on the other hand, it be tons of displacement per mile of sea coast, the order will be entirely changed as follows: Germany, Italy, France, Japan, England, Russia and the United States.

THE INCREASE IN ARMORED TONNAGE AND PERSONNEL OF THE PRINCIPAL NAVIES FOR 1902-03, ALSO THE TOTAL NAVAL ESTIMATES FOR 1903-04

Dotted lines—Personnel. Full lines—Tonnage. Broken lines—Estimates.

UNITED STATES	Personnel.....	3,000
	Tonnage.....	60,000
	Total Appropriation,	$72,500,000
ENGLAND	Personnel.....	3,750
	Tonnage.....	111,800
	Total Appropriation,	$172,000,000
RUSSIA	Tonnage.....	67,500
	Total Appropriation,	$51,000
GERMANY	Personnel.....	2,800
	Tonnage.....	66,000
	Total Appropriation,	$55,000,000
ITALY	Tonnage.....	63,125
	Total Appropriation,	$36,000
FRANCE	Personnel.....	1,100
	Tonnage.....	54,781
	Total Appropriation,	$60,000,000

TRANSPORTING NEW YORK'S MILLIONS

MORE PASSENGERS CARRIED ON THE STREET RAILWAYS IN NEW YORK CITY THAN ON ALL THE OTHER RAILROADS IN THE WESTERN HEMISPHERE—THE MOST DIFFICULT TRANSIT PROBLEM IN THE WORLD—HOW PUBLIC AND PRIVATE ENTERPRISE ARE ENABLING NEW YORKERS TO DEVOTE MANHATTAN ISLAND ALMOST SOLELY TO BUSINESS

BY

W. W. WHEATLY

Illustrated from photographs by A. Hedley and A. R. Dugmore

WHILE New York with all its boroughs is one city, it is with equal truth more than one city. It is in reality an aggregation of cities. Manhattan is the great business and social centre, but clustered around it is a chain of populous communities each a city in itself. A gentleman residing in New Jersey, within forty-five minutes' ride of Manhattan, when told recently that he could scarcely claim to be a New Yorker, replied: "Why not? My business interests are here, and the only thing besides the Hudson River which separates my residence from my business is an imaginary line which for some purposes is of value but for other purposes doesn't count. I'm just as near the business district of Manhattan as the resident of the Bronx or the suburbs of Brooklyn, and when you are counting New Yorkers I want to be counted in."

In any broad view of the metropolitan population there should be included the three New Jersey counties just across the Hudson River, with a population at present of about 900,000. The population of the several boroughs of New York is about 3,632,000, which, with tributary New Jersey added, gives a total metropolitan population at the beginning of 1903 of 4,500,000. The annual average rate of increase is more than 100,000. Within the decade from 1890 to 1900 the increase was 38 per cent., or 3.8 per cent. per annum, and it is unlikely that the next decade will show a greater rate of increase than the past. Assuming the increase for the next decade at the rate of 35 per cent., the estimated population in the year 1913 should be a little more than 6,000,000 people.

Meanwhile New York is growing upward as well as outward, and facing as it grows the most complicated transit problem in the world. It advanced at first from a four-story to a ten-story city. Its expansion outward toward the suburbs promoted its growth upward in the crowded business district. Long ago it passed the ten-story period and jumped to the fifteen-story and twenty-story type of construction. Now it is entering the thirty-story period. The modern steel building twenty to thirty stories high, and housing thousands in place of hundreds under one roof, has contributed more than any other single cause to the increased concentration of passenger travel to and from the business district. In a recently built twenty-nine-story structure there are 1,125 little boxes called offices. Nearly 6,000 people are employed in this building. It requires twenty trains of six cars each to furnish seating capacity to carry them to their homes. When all of them turn out at 5:30 every evening and try to go home at one time, and when hundreds of other buildings disgorge their thousands of homeward-bound workers, all impatient to secure a seat or a strap, the concentration of people in the trains and cars is like the packing of sardines in a box. If the upward growth continues, the concentration during business hours will become a problem of the utmost gravity; indeed, as a noted transportation expert recently called it, "colossal." Said he:

"The thing above all others which impresses me is the striking fact that the surface and elevated roads of New York carry twice as many people every year as all the steam railroads of the United States combined. Also that the yearly travel on the New York roads more than equals all the steam railroads of

North and South America combined. I do not wonder that your people say they have a serious and complicated traffic problem to solve."

When asked if, after studying the conditions, he could suggest a solution, he said, with a gesture of impatience:

"There is no solution—at least, not at present. You may think next year that you have solved it, but your passenger travel is increasing so rapidly that it will not stay solved. The same old problem in one form or another will present itself each succeeding year for many years. The greatest difficulty is that there is a limit to the number of lines which can be placed within the limited area of the lower end of Manhattan Island, and sometime during the next generation that limit will be reached. You should have a board of transportation experts, composed of three engineers and two practical transportation men, to prepare a comprehensive plan of transit development which can be worked out gradually as the city may require.

New York has fallen several years behind her transportation needs, and no improvement can be made without municipal coöperation with the transportation companies. Other cities also have permitted their transportation facilities practically to stand still while the population outgrew them. There is no large city in which the facilities of rush-hour transportation have kept pace with the requirements. The problem in all these cities is similar, but not equal in difficulty, to that of New York. In New York it is absolutely unique. Situated like a feudal castle surrounded by a moat spanned by a single bridge, Manhattan forces those living to the east and west literally to fight their way over the barriers. All day the business district surges with tidal waves of traffic. In the homeward-rush hour its force becomes almost irresistible. Notwithstanding the steady expansion of the city outward and upward, few people remember that the street facilities remain the same. A twenty- or a thirty-story city demands something more than a one-story street. It also requires more and better transportation lines than the four-story city of ten to twenty years ago.

The time is not far distant when Manhattan Island must be devoted to business alone. The insufficiency of its narrow area to provide room for residences for its business population will eventually drive the people across the rivers in search of homes. Country residences, now the luxury of the rich, will become the privilege of the poor. City homes are now considered desirable for not more than six or seven months in the year. For this reason the apartment hotel is becoming the temporary residence of those who live part of the year in the country. The number of private dwellings now being erected in Manhattan is only one-fifth as large as ten years ago, and their average cost in the same time has increased fourfold. In 1892 the number of private dwellings built was 710, at an average cost of $17,500. In 1901 it had dwindled to ninety-seven, at an average cost of $59,800. In 1902 the number erected was 144, at an average cost of $78,000. The devotion of larger areas to railroad, bridge and tunnel terminals, to parks, public institutions and apartment hotels, and the constant overflow of the business districts into the residential districts, make it reasonably certain that the time is near when only the very rich can afford private dwellings in the city proper. The construction of sixty huge apartment hotels at a cost of $750,000 each in 1902 indicates the direction in which the residential section is being transformed.

At the present time the number of passengers handled on the surface and elevated lines of the metropolitan territory amounts to about 1,350,000,000 a year, an increase within ten years of more than 100 per cent. The increase of passenger travel as compared with the increase of population is at the rate of almost three to one, and such has been the experience in nearly all large cities. In Manhattan, Richmond and the Bronx 2,500,000 passengers are handled daily, about 1,200,000 in Brooklyn and Queens, and about 400,000 on the local lines just over the river in New Jersey, making a total of more than 4,000,000 daily riders. In the year 1860, the number of rides per capita of population on Manhattan Island was 47; in 1870 it was 118, in 1880 it was 182, in 1890 it was 283, in 1900 it was 388, and for 1903 it is estimated at 415. These figures reflect not only the growth of Manhattan, but also of the surrounding territory. The distribution of the daily travel between the elevated and surface lines of Manhattan is indicated by the figures furnished for the six working days of the week ending December 13, 1902, in which the

elevated system averaged 749,172 and the surface lines 1,519,608, making a total of 2,268,780 passengers daily. These figures are often exceeded. For instance, on the first day of the Dewey celebration in September, 1899, the elevated carried 805,000 and on the second day 836,000, and on Monday, December 22, 1902, it carried 931,000 passengers; and on Monday, December 17, 1902, the surface lines carried 1,625,127. Seventy-five per cent. of the surface traffic and all of the elevated traffic is north-and-south traffic, and only twenty-five per cent. of the surface traffic is handled on the east-and-west lines.

The map of Manhattan Island shows the marked peculiarities which shape the traffic situation and account for the tremendous condensation within a narrow area. It is like a triangle, with its base resting at the north on the Harlem River and its southern apex eight to thirteen miles distant at the Battery. The rivers have heretofore proved almost insuperable obstacles to the lateral expansion of the city. The narrowness of the triangle, one-half to two miles between the rivers, has crowded the business district, to which the greater part of the traffic flows, into a very small area. The long lines of traffic coming from the north converge as they approach the business district. Many of them terminate before they reach the City Hall, and the few remaining ones coalesce as they proceed toward the apex of the triangle at the Battery. The great office district and financial centre, located between Canal Street and the Battery, a distance of a little more than a mile, is at the narrowest part of the triangle, and is served by the narrowest of streets and the fewest transportation lines. It is here that the Brooklyn Bridge and most of the great ferry lines of the Hudson and East rivers drop their swarms of passengers on the island, and it is here that the congestion of traffic is most marked. Most of the people coming from over the rivers by the bridge and ferries are compelled to walk to and from their business. The following figures show the volume of the east-and-west (bridge and ferry) traffic for the year 1902:

PASSENGERS CARRIED, YEAR 1902.

East River and Staten Island Ferries, all lines	84,500,000
Brooklyn Bridge	109,000,000
Hudson River Ferries, all lines	108,500,000
Total	302,000,000

It is of considerable interest to know what the daily east-and-west traffic from over the rivers amounts to, and the figures are given below:

AVERAGE DAILY TRAVEL FROM OVER THE RIVERS TOWARD MANHATTAN.

From Long Island and Staten Island by Ferries	119,000
From Long Island by Brooklyn Bridge	150,000
From New Jersey by Ferries	150,000
Total	419,000

As these figures represent travel one way only, it will be seen that the ferry and bridge lines carry an average of 838,000 passengers to and from Manhattan each working day.

The concrete fact, however, upon which transportation calculations must depend, is the number carried in an hour in one direction. The transportation problem of Manhattan, as of all other large cities, is strictly a rush-hour problem. The morning rush is between 7:30 and 9 o'clock, and the heavy evening rush in the single hour from 5 to 6 o'clock, with the peak of the load from 5:30 to 6 o'clock, when everybody wants to go home at once. The business and shopping district of Manhattan, roughly speaking, may be described as that part of the city between Twenty-third Street and the Battery. To this district the heavy stream of traffic flows in the morning and back again at night. A careful estimate which I have recently made, based upon the most reliable information and figures obtainable from the transportation companies, shows the average volume of traffic leaving this district from 5 to 6 o'clock P. M. to be as follows:

ESTIMATED RUSH-HOUR TRAVEL LEAVING BUSINESS DISTRICT.

To the Northward by all Elevated Lines	75,000	
To the Northward by all Surface Lines	67,000	
		142,000 or 56.8%
To Long Island and Staten Island by Ferries	31,000	
To Long Island by Brooklyn Bridge	33,000	
		64,000 or 25.6%
To New Jersey by Ferries	32,000	
		32,000 or 12.8%
To Local Manhattan (east and west) points, not included above	12,000	
		12,000 or 4.8%
Average Total in Maximum Hour		250,000 or 100%

These figures are often exceeded upon special occasions, as, for instance, the Brook-

lyn Bridge has carried more than 42,000 and the Manhattan Elevated more than 90,000 in one hour in one direction. The figures show a conservative daily average at the present time. They show that to carry all these people with an average of 500 persons a train would require 500 trains. To carry them in trolley cars, with an average of fifty persons to each car, would require 5,000 cars. To handle this enormous multitude in an hour by steam and electric roads combined is a feat unparalleled in the history of transportation the world over. The significant feature of the figures is that 56.8 per cent. of this travel goes to the northward, and this fact should be remembered in connection with the creation of the proposed additional transit facilities. The detailed figures, which are not given here, show that the north-and-south travel is divided almost evenly between lines on the east and west sides of the city.

The average traveler has no idea of the variety and extent of the hourly interruptions to traffic of a great city railway. If one could spend a few hours by the side of the manager of one of the great systems, and read the reports of the blockades and delays, seemingly almost beyond human foresight to control, as they are telephoned from over the entire city to central headquarters, he would wonder at the regularity of the service. On the surface lines of Manhattan from December 1 to 18, 1902, inclusive, there was a daily average of twenty-four serious detentions averaging eighteen minutes each. The delays of less than five minutes, of which there were seventy-five daily, are not taken into account. None of the serious delays reported were caused by failures of equipment or power or by anything that could be controlled by the management, but were all caused by street vehicle traffic and other obstructions. On December 27, 1902, in the hour from 11 A. M. to 12 noon, the number of vehicles crossing the surface railway tracks at the triangular street intersections of Broadway, Twenty-third Street and Fifth Avenue, by actual count, was 1,910 vehicles. The interruptions from the unregulated vehicle traffic alone have become so great in New York, Chicago, Boston, Philadelphia and other large cities that the electric surface cars, with a possible speed of twenty to twenty-five miles per hour, are reduced in congested streets to the horse speed of five or six miles an hour. Some adequate provision should be made for regulation of vehicle traffic. It is probable that in future years the people, in self-defense, will demand that all heavy trucking be taken off Broadway and other congested streets in other cities, and that the receiving and discharging of goods from shops, freight stations, warehouses and stores be conducted so as not to block the sidewalks and not to interfere with passenger movement. The endless procession of vehicles getting in the way of one another and in the way of cars, all moving like a funeral procession, makes it certain that the long-distance rider never patronizes the surface lines from choice, but from necessity. The limitations upon the elevated roads force a considerable portion of the long-haul traffic upon the surface lines, greatly to the discomfort of the people and against the wishes of the railway managers, who have been powerless to prevent it.

The problem of collecting and distributing the enormous passenger traffic of New York has grown vastly more difficult in recent years. There has been some increase in track mileage in the outlying districts, but none of any account in Manhattan within the last decade, in which the passenger travel doubled. The effect of density of population upon railway traffic, while understood in a general way, is seldom considered in comparing the transit facilities of one city with another. The following figures show that unless density of population be considered comparisons are of little value:

POPULATION AND TRAFFIC PER MILE OF TRACK, YEAR 1901.

Surface lines only.	Miles of Track	Pop. per mile of track	Car miles per mile of track	Gross receipts per mile of track
Manhattan....	299.62	6,174	197,293	$65,983
Chicago.....	518.11	3,927	118,000	25,784
Philadelphia..	457.37	2,829	125,676	29,586

The population and traffic density in Manhattan, as will be seen, are far beyond those of any other large city. It is instructive to look back and discover that in Manhattan there have been no really great additions to the transit facilities within the past quarter of a century beyond the building of the Brooklyn Bridge and the elevated roads. With travel increasing 100 per cent. every ten years and no additions to the track mileage worthy of mention, there was bound to come a time when the existing lines, notwithstanding the application of electric traction with

larger cars and longer trains, would reach the limit of their capacity. That time has now arrived. The problem now is not only to make provision for present needs, but for the future. And such a strenuous future it bids fair to be! With a population ten years hence of 6,000,000 and a possible daily passenger travel in the metropolitan district of 8,000,000, it is probable that the number of people seeking exit from the business district between five and six o'clock each evening will be 500,000 instead of half that number as now. To look forward and try to comprehend the significance of an increase of 100 per cent. in passenger movement within the next decade ought to be sufficient inspiration to make New York wake to the situation.

The last few years, however, have been noteworthy for what has been planned. The next five years, in which many of the plans will reach completion, must always be memorable in the transit development of the city. The problems presented a few years ago to the very excellent Board of Rapid Transit Commissioners and the city authorities were:

First. To annihilate the river barriers on the east and west and furnish a more ready means of intercourse between all the boroughs of the greater city as well as with the tributary New Jersey territory and the mainland beyond.

Second. To provide a system of subways and add to the facilities of the existing lines so as to give the greatest possible accommodation to the north-and-south traffic.

Third. To provide suitable terminal arrangements and furnish a means of distributing the passengers brought into Manhattan by the new bridges and tunnels from the east and west, so that the local Manhattan lines, already overcrowded, will not have the burden of distribution.

Fourth. So to arrange the additional transit facilities that the local traffic, with many stops, will not retard the long-haul traffic, with few stops, and that the traffic of one line shall not cross at grade the traffic of another line.

To work out the problems, in addition to what has been done by the Board of Rapid Transit Commissioners and the municipal authorities, private enterprise has planned and is executing works of great magnitude. Greater New York is now on the verge of a gigantic transformation. The plans for additional transit facilities itemized below call for the expenditure of the almost inconceivable sum of more than $160,000,000 within the next five or six years.

STATEMENT OF ADDITIONAL TRANSIT FACILITIES AUTHORIZED AND THEIR PROBABLE TRAFFIC CAPACITY IN ONE DIRECTION.

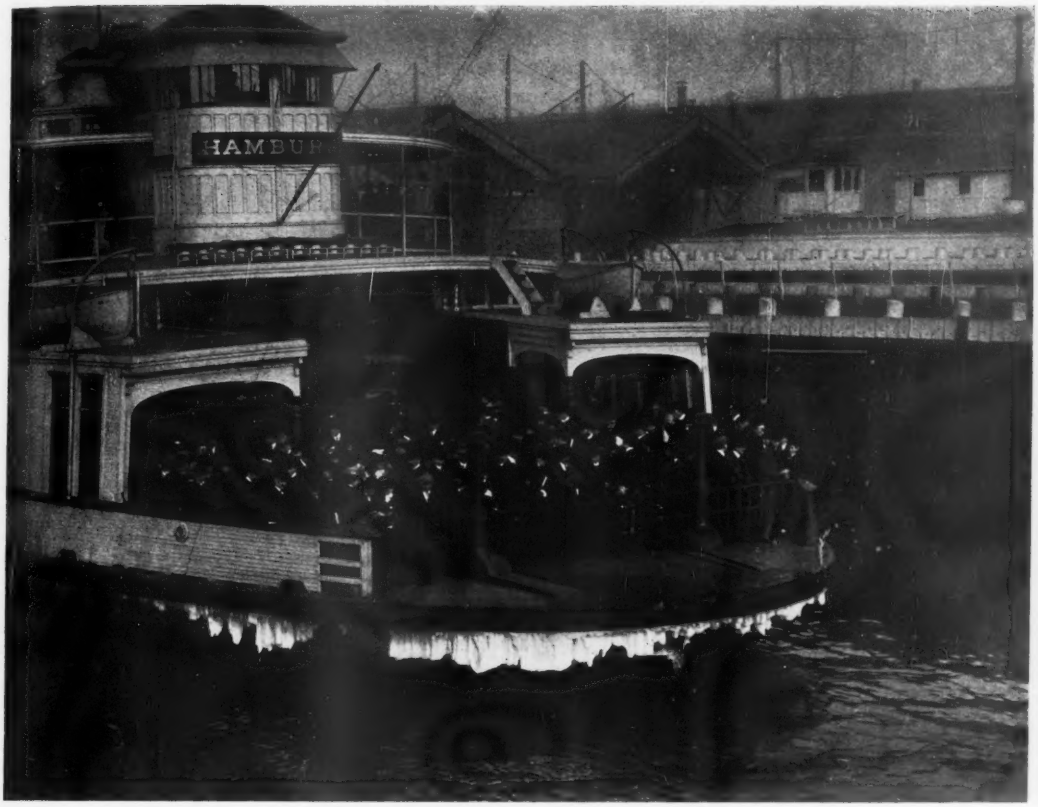
	Hourly capacity, number of passengers.
Manhattan Bridge No. 2, East River, eight tracks	92,600
Williamsburg Bridge No. 3, East River, six tracks	63,800
Blackwell's Island Bridge No. 4, East River, six tracks	63,800
Municipal Rapid Transit Tunnel, East River, two tracks	19,200
Pennsylvania-Long Island R. R. Tunnel, East River, four tracks	38,400
East River Total	277,800

	Hourly capacity, number of passengers.
Pennsylvania-Long Island R. R. Tunnel, Hudson River, two tracks	19,200
New York and New Jersey Tunnel, Hudson River, two tracks	19,200
Hudson River Total	38,400

	Hourly capacity, number of passengers.
Municipal Rapid Transit Subway No. 1, four tracks, south of Forty-second Street	43,000

In addition to the facilities already authorized, there is now before the Rapid Transit Commission from its chief engineer, Mr. Parsons, a proposal to increase the Manhattan elevated railroad facilities by the addition of five new tracks on the several divisions downtown, also a proposal to build Subway No. 2, with two tracks, from a connection with the West Side branch of Subway No. 1 at Forty-second Street, through Broadway, University Place, Wooster and Church Streets, to the Battery; also a proposal that the New York Central remove its present freight tracks from the surface of Tenth and Eleventh Avenues and other streets between Fifty-ninth Street and Houston Street and construct an elevated road along the same route with four tracks, two of which should be for passenger service, and be extended by way of West Street to the Battery. There are also proposals for the construction of an East Side branch of Subway No. 1 running north from Forty-second Street under Lexington Avenue to and beyond the Harlem River, and for other branches connecting the trunk subways at various points.

But the real problem of transit relief relates primarily to the lower end of Manhattan. With the exception of the few bridges and tunnels which deliver the east-and-west



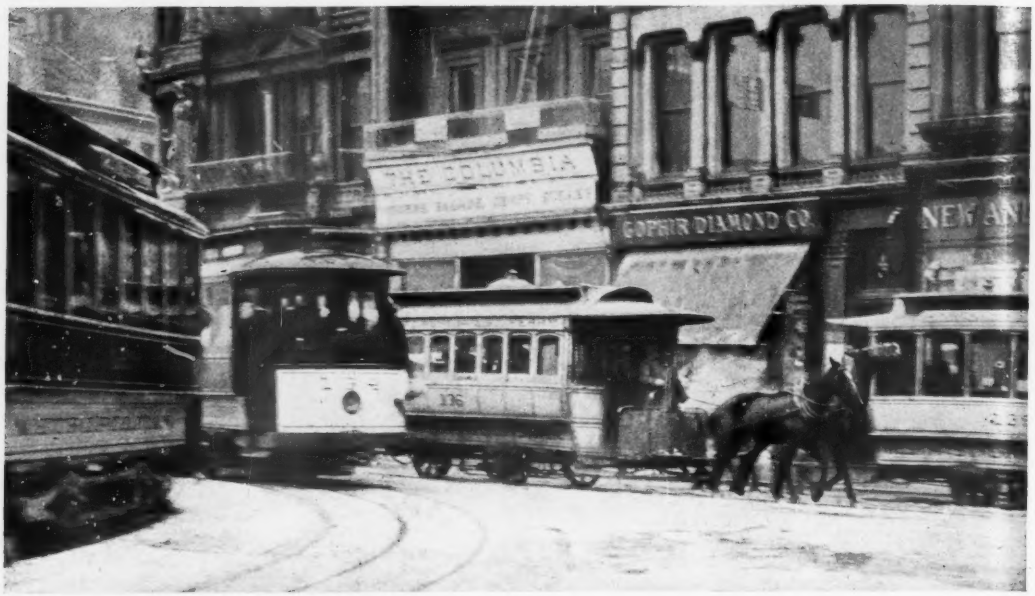
THE MORNING CROWD ON A FERRY-BOAT

travel direct to the business district, it is certain that the swarms of people from the other bridges and tunnels will be thrown upon the local Manhattan lines for distribution. The travel from the Blackwell's Island bridge, the Pennsylvania-Long Island railroad tunnel and the New York and New Jersey tunnel will be dumped upon the south-bound lines in the morning and upon the north-bound lines in the evening at the height of the rush hour.

The electrical development of the Hudson, Harlem and Putnam divisions of the New York Central, and the main line of the New Haven road for a distance of twenty to thirty-five miles to the northward, the building of the new Portchester road, the extension of the elevated and subway routes to various parts of the Bronx and Westchester to the north, will certainly make a great increase in the number of long-distance passengers seeking through train service to and from the business district. According to the plans now before the Rapid Transit Commission, the increased facilities make a total of nine additional tracks. This does not include the four tracks in Subway No. 1 now nearing completion, which, it is admitted, will be crowded to the maximum limit as soon as operation begins. Accessible data now at hand show that,

WHEN THE CROWD SPREADS OUT INTO THE BUSINESS DISTRICT

Coming down from the Elevated Railroad



CONTRASTS IN STREET-CAR SERVICE

The electric cars rounding "Dead Man's Curve" at Union Square, New York, and the antiquated horse-cars on a crosstown line

LONG LINES OF CARS FORM IN A FEW MINUTES

The only break in stalled cars is at cross streets, where drays and teams crowd through and add to the confusion

assuming high-speed operation, the maximum capacity of Subway No. 1 will probably reach 540 cars an hour in one direction, or perhaps 43,000 passengers, seated and standing. By the time of the completion of the subway, in 1904, the north and south traffic will probably average 160,000 in the rush hour, of which at least one-half will have to stand. The subway, therefore, will be unable to furnish seats for any considerable number of the passengers, and its trains in the rush hour will witness the same scenes of packing and jamming with which New Yorkers are, unfortunately, too familiar, after much unpleasant experience.

If the nine additional tracks proposed by Engineer Parsons were to be completed at the same time as Subway No. 1 in 1904, there would undoubtedly be felt an adequate sense of relief; but they are not yet authorized, and it will require from three to five years for their completion. Within five years it is probable that the present traffic will have increased 50 per cent. By that time the new bridges and tunnels to the east and west will have

CLEARING THE WAY

The indispensable snow-plow and sweeper at work

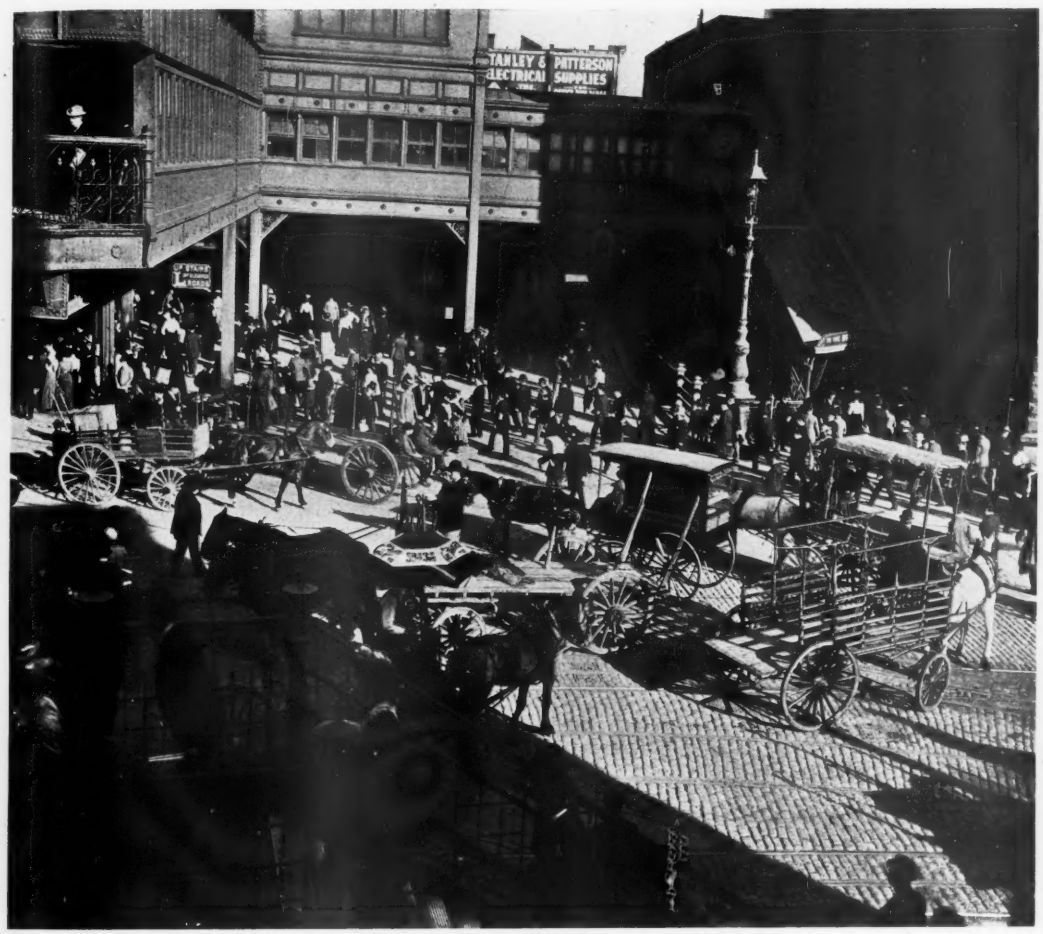
CARTS HEMMED IN BY THE CARS

The side streets are filled with wagons either getting away from the crowded thoroughfare or held back by the lines of cars

A SNOW-STORM—WHEN CROWDS AND DIFFICULTIES INCREASE

A CLOSELY PACKED AFTERNOON CAR

Often both rear and front platforms as well as the standing room inside are crowded full



THE TERMINAL AT BROOKLYN BRIDGE
Where mobs literally fight for conveyance during the rush hours

begun to pour their mighty volume of people upon the north and south lines for distribution, and there will be a continued increase in the demand for north and south transit. For every yearly increase of 100,000 in population there is a corresponding increase of 300,000 in passengers carried. The new facilities will be insufficient to give adequate accommodation. And the direction of the city's future great expansion will depend almost entirely upon the sufficiency of the transit facilities.

The additional bridges and tunnels pointing toward Long Island, already authorized and under construction, will be completed in 1907 or 1908. They provide for thirty tracks where now there are but four—an increase of twenty-six direct rapid transit highways connecting with Long Island. The maximum carrying capacity of the twenty-six additional tracks in one direction in one hour will be approximately 277,800, and, with the four tracks of the present bridge added, it is 317,800. The present daily travel coming from Long Island to Manhattan is approximately 269,000 passengers. It therefore becomes evident that when there are thirty tracks instead of four connecting Long Island with Manhattan, the entire travel of one day could cross the river with comfort by rail in an hour. When we remember that the twenty-six additional tracks are being provided for a traffic which now averages only 64,000 in the rush hour (or 25 per cent. of the total rush-hour traffic to the business district), and that only four

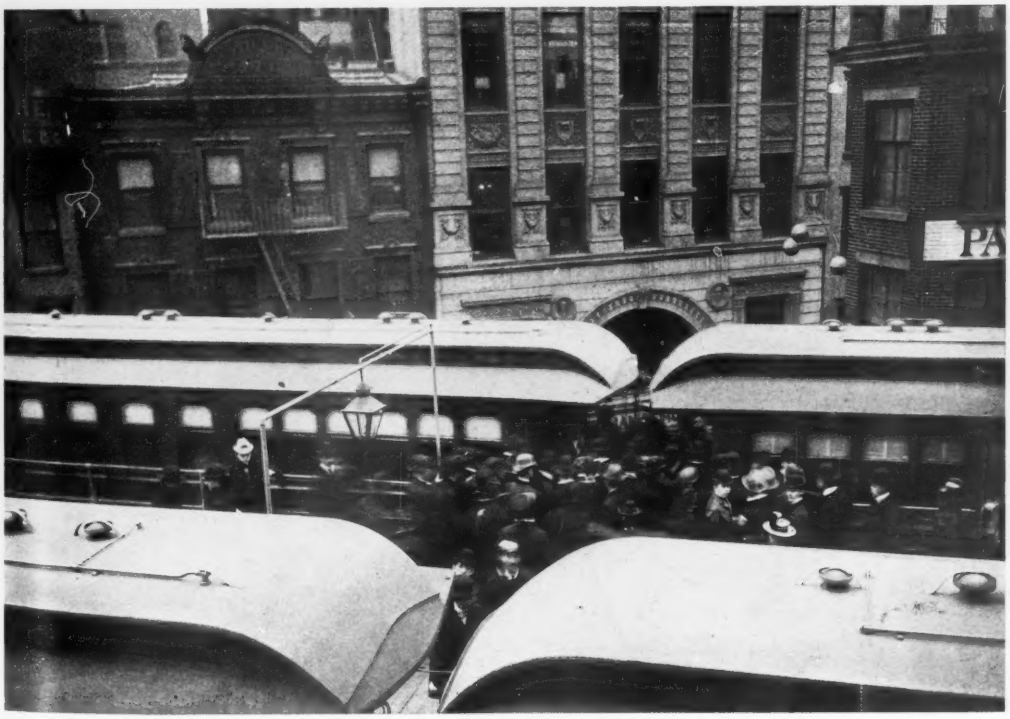
additional tracks have been actually authorized (and nine proposed) for a traffic which now amounts to 142,000 in the rush hour (or 56 per cent. of the total to the business district), the relative proportions of these provisions appear almost ridiculous. The contrast comes about largely from the fact that a bridge in the open air and light with six or eight tracks has a vastly greater traffic capacity than a dark tunnel underground with two or four tracks. However, it seems certain, if the north and south lines of Manhattan are to be always overcrowded, while the transit facilities toward Long Island are to be more than ample, that the population will be forced along these lines of least resistance. Those who have an eye to the future appreciate the fact that, with its cheap suburban homes, Long Island is only awaiting the completion of these splendid transportation facilities to enable it to enter upon an era of growth and prosperity hitherto little dreamed of.

The present travel coming to Manhattan from New Jersey in one day is approximately 150,000 people, and the same number returning, handled exclusively by the ferries. The travel in one direction at the hour of maximum traffic is about 32,000. The two tunnels between Manhattan and New Jersey will have a maximum hourly capacity in one direction of 38,400 passengers. These facilities will not compare in magnitude with those toward Long Island. The advantage which suburban Long Island and Brooklyn will enjoy becomes all the more striking. In planning and executing such a splendid system of direct communication with Long Island, the municipal authorities have looked not only

WAITING FOR AN ALREADY CROWDED ELEVATED TRAIN

STALLED CARS ON NARROW BROADWAY, NEW YORK
A frequent sight

THE FIFTH AVENUE STAGE
The last of the old stage lines



WHERE THE CROWDS MEET
Those leaving the elevated trains at City Hall, New York, find another mass of people awaiting them, and the two crowds elbow their way through each other within narrow limits

to the present but to the future. They have planned largely and broadly and according to an enlightened policy, and future years will furnish ample testimony to their far-sighted enterprise. Unless all signs of the times are at fault, they distinctly point to an immediate overflow toward Long Island, increasing with the succeeding years, of the hundreds of thousands now unwillingly crowded into the tenements and flat-houses of Manhattan. Peering through the haze of the future, one perceives with uncompromising clearness the vision of a magnificent city on Long Island whose startlingly rapid growth within a few years will overshadow Manhattan and carry with it the centre of population of Greater New York.

The dispersing of the condensation of resident population from lower Manhattan toward Long Island, New Jersey and the Bronx does not mean that there will be fewer people coming to business in Manhattan. It means that there will be more. The concentration in the business district will continue, and there will be need of still greater transit facilities than any yet planned for Manhattan. The most that can be hoped for is that the concentration in one place will not become materially increased, but that future growth will spread the business district

WHERE FERRIES LAND THE CROWDS FROM THE SUBURBS

Along the West Side water-front

Photographed at the Burr McIntosh Studio

MR. HERBERT H. VREELAND

PRESIDENT OF THE INTERURBAN STREET RAILWAY COMPANY, NEW YORK, WHO, CONSIDERING HIS PROBLEM, HAS BROUGHT STREET RAILWAY TRANSIT TO A REMARKABLY HIGH POINT OF EFFICIENCY

over a larger area. This will afford larger opportunity for additional rapid transit expansion in all directions. If the slow horse-cars, the time-destroying ferry service and the poor suburban car service have confined the population within the limits of a narrow circle, it is certain that real rapid transit with ample accommodations will remove the radius of the circle farther and farther into the country districts. Not the least of the benefits will be that the men with the dinner-pail, as well as the men with the check-book, may enjoy the waving grass, the fruitful orchards, the green hills, the woodland and the shore. Freshened and strengthened by their closer contact with nature, they will come back to their work each morning to renew the struggle for existence or supremacy in the most intense city in the world. Truly we shall have within a few years a Greater New York—greater in many ways than we could have foreseen twenty years ago, and perhaps the greatest centre of population and commerce the world has ever known. In its transit facilities, unless its citizens blunder fatally, it will progress in unison with its other achievements. Its bridges and tunnels over and under the rivers, and its subways through the solid rock under the city, will be marvels of their kind, not only in their construction, but in their daily operation in moving quickly and safely the increasing millions of population.

THE CROWDED BUSINESS DISTRICT AT WINTER MIDDAY

Broadway, New York, between the Post Office and the old Astor House

A HOLIDAY CROWD OF HOME SEEKERS GOING TO A SALE OF LOTS

BUILDING TOWNS TO ORDER

THE METHODS OF SUBURBAN PROMOTERS — THE AUCTIONEER'S ELOQUENCE, FREE RAILROAD TICKETS, SANDWICHES, AND A BRASS BAND — HOW HOME BUILDING IS REALLY FURTHERED BY ENTERPRISING AND EVEN SENSATIONAL METHODS

BY

HENRY HARRISON LEWIS

Illustrated in part from photographs taken by the author

ONLY the very poor and the very rich are content in these days to have city homes; the middle classes go to the suburbs. And with the modern tendency toward colossal enterprises has arisen from this movement to the country the trade of manufacturing towns "to order." It goes on daily near all our large cities, employing armies of men and millions of dollars. Dissatisfied with cramped apartment houses, thousands of home seekers are spreading out from Boston, New York, Chicago and Philadelphia to find in all directions newly built towns prepared for them by realty companies. Rural surroundings, well-kept streets, green lawns, shade trees, large plots of ground, better air, areas wherein shops are forbidden, are the inducements of the company promoters and agents.

"Brookview!" bawled the brakeman, as the long train slowly came to a stop in front of the little kiosk-like station. Heads disappeared from the windows and, following a tall man in a frock coat and a silk hat, old

WHERE A TOWN WILL SOON BE BUILT

men, young men, women, children, and even babies crowded upon the station platform.

It was an hour before noon, and the midsummer heat was oppressive. The only shade visible was a fringe of trees and underbrush a quarter of a mile away. A road, newly macadamized and with the raw earth still apparent at the edges, stretched its ugly length from the station to the leafy fringe. Out in the roadway were half a dozen stages, each gaily decorated with bunting and bearing long muslin signs reading:

"The Brookview Realty Company. Welcome to Brookview."

One of the stages received the band, and presently the strains of a popular march filled the sultry air.

"This way, friends," shouted the man with the frock coat. But, as there was an overflow, even after the stages were filled to the doors, he and a score of others walked. "See that rise of land just this side of the big rock?" he asked. "That's the site of the First Methodist church, and over beyond is the new schoolhouse. The plans are all made, and we expect to begin building next month. See that roof just within the trees ahead of us? That's Colonel William P. Briggs's house. He's the big lawyer in Nassau Street, you know. Going to Congress next year, I hear. Colonel Briggs thinks Brookview the finest suburban town within thirty miles of the city. He bought five more lots last week. Going to build on them this spring."

THE SITE OF A BUILT-TO-ORDER TOWN IN NOVEMBER

THE SAME SPOT THE FOLLOWING SUMMER

Taken from a different point of view

Presently the procession, after passing a number of partly laid out streets, some paved and others merely outlined in the fields, reached the grove. Here were several tents, a large one, open at the sides, showing a number of rows of benches and a tall pulpit. In one of the smaller tents rested a number of mysterious boxes and packages and a quan-

tity of crockery. There were also a few kegs and a huge coffee urn. The crowd, good-natured despite the warm ride, scattered about the grove.

The man in the frock coat, whom several had designated as "the auctioneer," bustled here and there dispensing jokes and gay pleasantries, especially assiduous to the women, in a familiar but respectful way. He knew that the majority of the women were married and held money intended for purchasing. Together with several assistants, he marshaled the crowd and led them into the large tent.

A REMINDER OF A LAND-BOOM WHICH FAILED

"Now, friends," he cried, mopping his perspiring face, "you're all welcome to eat and to drink as much as you please. It doesn't make any difference whether you buy lots or not. There's plenty of everything. The lunch is as free as the beautiful air here in Brookview, and you'll really do us a favor if you'll pitch right in. The day is a trifle warm, but have you noticed how much cooler it is here than in the city?"

He paused impressively. A slight breeze rustled the foliage and set the banners fluttering, but out beyond the shelter of the grove

AN ABANDONED TOWN-SITE

the . . . still beat down from a cloudless sky and the newly disturbed earth flanking the rows of macadamized streets was dry and caked with the heat. Still the country was inviting by contrast with the uninteresting, sober city thoroughfares these people had left that morning.

"Now while you are eating," he resumed, "I'll just make a few remarks; then, when you

SIGNS OF STREETS THAT WERE NEVER LAID OUT

VISITORS EXAMINING THE PROPERTY
The road not yet graded

are through, we'll go out and look over the advantages of Brookview as a home."

There were bread and butter, boiled eggs, beans, cold corned beef and thin slices of ham, possessed a peculiar fascination for the men: the sound of popping corks came from within.

The "few remarks" took the form of a

THE FIRST STEP IN IMPROVEMENT
Grading the road

cheese and crackers, cake, and both tea and coffee. A huge can of milk was served to the children, and ice-cream was passed around in heaping saucers. One of the small tents realistic description of the property. With a long pointed stick he indicated certain parts upon a large map hanging from a pole near his platform. The audience listened in-

ROADS GRADED AND EVERYTHING IN READINESS FOR BUILDING

THE SITE OF A NEW YORK SUBURBAN TOWN BEFORE IMPROVEMENTS BEGAN

tently. Some of the men took notes of lot numbers.

"I want to tell you a story," he said. "It's about a young fellow who had an ambition to live in his own home. His parents were in fairly moderate circumstances, but they paid rent from the time they were married and seemed content to spend their days in a stuffy little flat on one of the side streets uptown. The young fellow, their only son, grew up and got married. Before the knot was tied, however, he bought with his savings

THE SAME SPOT WHEN THE TOWN WAS FINISHED

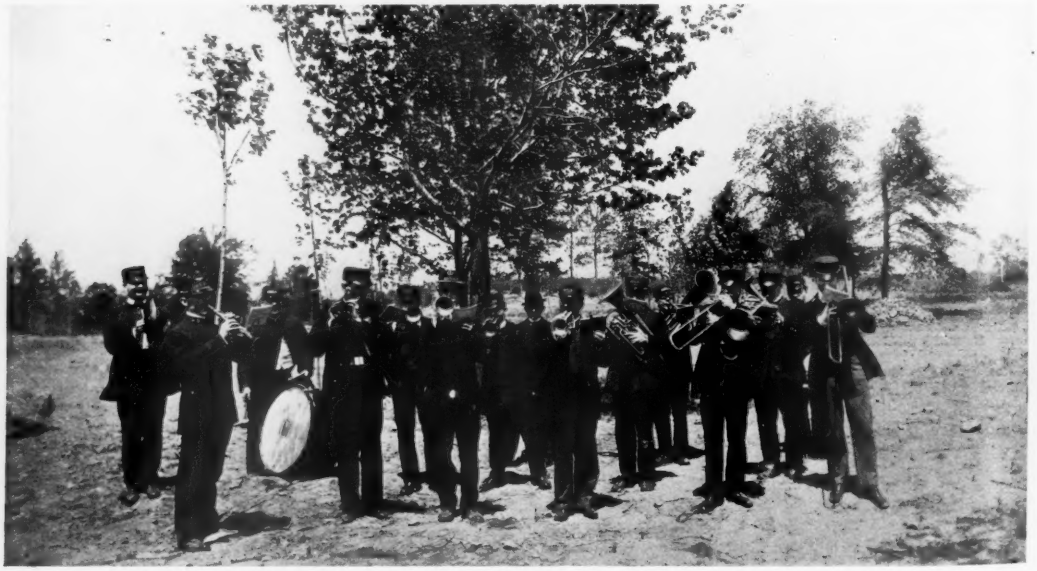
THE REFRESHMENT TENT AT A SALE OF LOTS

a lot in a suburban addition. His parents said he was foolish, but he said he'd risk it.

"Well, he paid fifty dollars down on a twenty-five-foot lot and the realty company built a house for him, embodying all the personal likings and ideas of the young couple. Shortly after he had made his tenth monthly payment of thirty dollars he met with an accident which partially blinded him. As his work was that of a proof-reader on one of the great city dailies, he lost his job and was compelled to scrape along on what he had laid by. That was five months ago. He still owed something like $1,400 on his house, with no prospect of paying it. The poor fellow's heart was nearly broken, especially as a baby had come and he did want a home for his family."

The auctioneer pointed with his stick toward a neat little cottage embowered in trees at the edge of the town site.

"Pretty home, isn't it?" he continued,



HOW THE HOME SEEKERS ARE RECEIVED

reflectively. "Any of you, if you owned it, would hate to lose that, eh? Well, the young fellow I have told you about lives there. He didn't lose it. It's his to keep. The Brookview Realty Company released the mortgage. And I want to add right here," raising his voice, "this corporation has got a soul, and it won't see any of its customers suffer."

The band broke into a lively air, the auctioneer smiled benevolently, and, descending from the platform, led the way from the tent. Presently he was asking for bids.

"This elegant piece of property on the corner of Bellville Avenue and Evergreen Street is my first offering," he shouted. "Just look it over. Slopes up from the sidewalk and has all the natural advantages. It's within easy walking distance of the station and fronts Harmony Park—that's the park between the rows of young trees. What am I offered? The lot is a fifty-footer and it's easily worth ten dollars a foot. Now, really I—— Hundred, did you say? No, I won't even start—— Hundred and fifty! That's better. One hundred and—— Make it seventy-five? Thank you."

The bidding soon ran up to two hundred and fifty, and then, after a strenuous effort to increase the price, the lot was sold at that figure. And so it went. Parcel after parcel of land passed under the hammer until at last, when the bidding and even the interest failed, a return was made to the train.

"A fairly good day," remarked the auctioneer to a companion, as he boarded a coach, "ninety-eight lots at an average price of a hundred and ten. A few more sales like this and Brookview will be comfortably started."

As the train steamed away from the lonely little station there was much rustling of maps and careful inspection of deeds upon which the ink was but newly dried. The purchasers of Brookview property seemed happy.

There are few cities of any size in the United States in which such business as this is not carried on. Everybody knows the announcements of suburban additions. But long before the advertising begins which paves the way to the auction sales, shrewd buying must be done and also economical building. Like all successful businesses, suburban developing has its own systematic detail. A capitalist ignorant of the trade could not successfully promote a suburban addition. He might know an ideal location, but the proper preparation and floating of the enterprise would be foreign to him. The selling of lots comes only after much preliminary work and a large expenditure.

The land is usually a farm or farms or a private estate near the city. The cost depends entirely on the ability of the promoter to drive a sharp bargain or to make his purchases under cover. It is seldom that land is bought directly by the promoter, especially if the selected plot belongs to more than one owner. A small part is bought here under one excuse and there under another. Different men make the bargains under different names, and every effort is put forth to conceal the real reason of the deals. In the case of one town within a few miles of Brooklyn, as in others, negotiations were carried on for half a decade before the entire plot was finally secured.

In another instance, also within a short distance of Brooklyn, the promoters of a new suburban town found themselves balked after securing options on all except two acres of the territory necessary to their plans. The amount of land involved was not large, but it unfortunately happened to occupy a spot directly in the centre of the proposed suburb. It was owned by a man who thought more of his little old ramshackle home than of the money offered for it. The promoters exhausted their ingenuity and then offered a price many times more than the property was worth, but all to no purpose.

In despair the promoters improved the rest of the plot, and altered their plans so as to provide for a wide boulevard through the centre of the two acres directly where the house stood. The thoroughfares were turned over to the city authorities and the disputed land condemned and sold under the usual rules. It cost heavily, however. Several years ago a suburban promoter operating near Philadelphia bought a dozen small farms consisting of about 140 acres, for which he paid a total of $182,000. He gave $2,800 toward the construction of an ornamental railroad station, constructed an electric line from the city to his property at a cost of $66,000, and expended in grading streets, planting trees, etc., about $60,000. This was an investment of more than $300,000, and that without a house or a sale to show for it.

After thoroughly completing all preparations, he began to advertise, using the news-

papers to the extent of $30,000. Prizes were offered in various ways, excursions conducted, and within a year after the completion of the improvements the suburb was a thriving and prosperous town. At the end of the third year the money originally invested had come back, and now, it is said, the promoter has secured a very comfortable profit.

But most important of the methods of promoting suburbs is advertising. It is said that one company which does business in several of the largest cities, and which has an invested capital of more than $5,000,000, annually spends hundreds of thousands of dollars in "booming" its suburban enterprises. The company has been in business almost twenty years and its policy is to exploit from three to five new towns each year. Its net earnings during its career have approximated at least seven per cent. on its investment. It was this company which originated the "free ticket, free refreshments and free music" excursion which has been so generally adopted.

"More suburban lots," said one promoter, "have been sold on a sandwich and a little poor music than in any other way. Let the people feel that they are getting something for nothing."

The principal feature of suburban town promoting, however, is the building and delivering of a modern home in a modern city on practically what would be one's customary monthly rent. All the advertising of the companies contains the same attractive suggestions: a "beautiful house, superior to any flat, on a lot highly restricted, amidst hundreds of other beautiful homes, built and building," for ten dollars down, "balance to suit your convenience"; "pure and invigorating air, combined with relief from the noise and dirt of the city, which will add years to your life and give your children an opportunity to grow up to be strong and healthy men and women," and all this in "a most healthy locality"; "new public schools, churches of various denominations; the town well sewered; good water from high surface; restricted property, fully improved, with stone sidewalks, gas and electric light; no assessments," all offered on easy terms, with small cash payments.

This alluring advertisement is based very largely on fact. There are fraudulent schemes, of course, and more than one suburban enterprise literally built upon sand, but the majority really possess the advantages offered. For proof one need only pay a visit to the many beautiful and well-populated towns in the suburbs of the large cities. The best promoters make provision for parks, sites for churches, schools, libraries and clubs, and in many instances the realty companies have established funds from which money is appropriated for commendable public enterprises, such as the establishing of volunteer fire companies, or athletic fields. Another inducement to purchasers is the "insuring clause." To every person who will buy a lot and live on it is given an insurance on his life sufficient to meet the remaining cost of the house and land in case of the purchaser's death—a practical assurance that the widow or children will not lose the home. Usually, too, every suburban town promoter has several houses ready for occupancy. These are of various sizes and contain all the modern improvements, such as nickel plumbing, tiled bath-rooms, hardwood floors, gas or electric ranges and steam heat. The prices run from $1,800 to $5,000, including the land.

To take an example of a very good house: a plot of land containing a modern built dwelling of from twelve to fourteen rooms can be purchased for $4,500. That amount of money need not be paid at once, but arrangements can be made approximately as follows:

Cost of house and land, . .	$4,500
Cash, first payment [10%]. .	450
Balance due	$4,050

A six per cent. mortgage is taken on this amount, and a stipulated sum, say forty dollars, is paid monthly on both principal and interest, until the total claim is settled. Some companies refund a part of the interest or use it for a specified purpose directly benefiting the holder.

And yet, despite the many apparently successful companies engaged in suburban town developing, there are a number of tracts of land in the vicinity of such cities as New York, Chicago and Boston that did not realize the anticipations of promoters. At least five undoubted failures can be found within a radius of fifteen miles from New York.

In one of these enterprises $250,000 was sunk. But for every such failure there have been twenty successes. The steady flow of city dwellers countryward is irresistible.

THE BUSINESS "ENGINEER"

THE SCIENTIFIC METHODS OF REORGANIZING INDUSTRIES TO MAKE THEM MOST EFFICIENT—A MANUFACTURER WHO INCREASED HIS BUSINESS BY $500,000 AND HIS PROFITS BY ONLY $8 AND WHO WAS TAUGHT BY AN EXPERT HOW TO MAKE MONEY—HOW A PRODUCTION ENGINEER DISCOVERS THE ACCURATE COST OF MANUFACTURING AND MAKES COMPETITION INTELLIGENT

BY

RAYMOND STEVENS

A STRIKING feature of the march of American prosperity since the Spanish war has been the quite modern innovation of reforming business from a rule-of-thumb activity into a science. A manufacturer, for example, who started two years ago along the industrial path which men follow in prosperity—leading often in the end to the disasters of depression—recently found himself compelled to make a thorough reorganization of his business simply because it grew so fast.

"Last year," he said, "I did $500,000 worth more business than the year before. Everything was booming, prices were holding up, and I felt already rich. And how much do you suppose my profits had really increased? I found at the end of the year—just $8.08."

"What did you do?" he was asked.

"I stopped guessing about the business," he said. "I called a business 'engineer' to systematize my plant, and now, instead of guessing, I *know*."

If this were true, it merited investigation. One, of course, had heard of business experts and "production engineers"—men credited with having the ability to master quickly the details of any business. Indeed, it was matter of report in a restricted circle that certain great captains of industry—wise in "using men cleverer than themselves," as Mr. Carnegie has put it—had called in experts to introduce better organization and methods than they and their subordinates had worked out—in short, that the economy and efficiency of some of our greatest business enterprises are due to scientific methods applied by outsiders. But exactly how these pioneers of a new profession work out and apply these methods; just how a man who, during one week, had shown an iron-master how to improve a plant the efficiency of which was the pride of its owner, could next reorganize a paper mill and then turn to systematizing a publishing house, the layman could only wonder dubiously.

An investigation showed the methods. Study of experts at work in eastern cities and in Chicago gave one an illuminating idea of the change in business from the old order to a comparatively exact science: it showed how the business engineer is making the modern business man more efficient.

Experts vary from the man with a new trick in book-keeping or a new way or appliance for filing records to save clerk hire to the production engineer who reorganizes departments, factory processes and the whole accounting system of an industry, welding the three into a compact, efficient unit, like a military battalion. The most interesting and important part of any expert's work, however, is in devising systems and methods of ascertaining the actual cost of production. Of course, the balance of any proper set of books will show the cost of the product of an industry as a whole; and there are various ways of estimating the cost of specific articles or classes of articles. Paper profits are easy to figure, and depend on very obvious large items of expense; actual profits are generally derived from minute savings on small details. What the manufacturer of today wants to know and is willing to pay liberally to get is an actual cost of each thing he makes, not at the end of a year, but while it is in the process of making. Such knowledge is of immense help in cutting down expenses. It also does away with the blind competition that has ruined many business men, for it gives an accurate basis for fixing selling prices.

One of the largest manufacturers of agri-

cultural implements in the country, after years of prosperous business, found increasing competition so keen that his profits disappeared. He called in an expert. "I manufacture," he said, "thirteen different classes of articles such as plows, harrows, cultivators and so on. My price-list shows more than 3,000 finished parts and complete machines. Now I want to know just how much each article costs me to make and just what my profits or losses are every month in each class in each different territory where I sell my goods. My competition varies in different States, and if there is no money to be made in my business or any part of it the sooner I know it the better." The expert spent two weeks examining the plant and watching the processes of the work. Then he devised and installed a system of collecting, just as they actually occurred, all the items of cost on each article. All raw material and factory supplies were kept in stock-rooms and a special stock account was kept. No one could draw material without filling out a card, called a material-requisition card, showing the amount wanted and the particular article or order that it was needed for. Every employee was made a clerk to the extent of keeping a record of his own time, of the work he accomplished, and of the particular order or article he worked on, all set down on a card called a time-card. Each time-card had only one item; if a man worked on four different orders he made out four cards. All these cards were collected daily and arranged by order numbers.

At the completion of any order, the material, requisition and time cards were added. This gave the cost of direct expenses. The indirect expenses, such as general factory supplies, office expenses, labor of foremen or any employees whose work on orders was in so small amounts that it was impracticable to record it, were distributed over each separate order by finding the ratio between the total cost of direct labor for all articles for a payroll period and the total of each different class of indirect expenses for the same period. This was done by departments. For instance, suppose that in a paint-shop this ratio was as 4 to 1, then to the cost of direct labor in the paint-shop for each article 25 per cent. of itself was added. Besides giving the most accurate practical way of distributing indirect expenses, this method shows carefully the fluctuations of the indirect cost of production where waste is most likely to occur. To find the profits and losses by classes of product and by territory meant the keeping of a separate account for each class in each State.

A monthly balance of the general books and of the cost accounts gave an accurate statement not only of the general condition of the business but of the net earnings for each month. The amount of assets in partly finished product was ascertained without an actual inventory—a difficult and expensive undertaking—by merely deducting from the total of all cost items the cost of all completed work.

It cost nearly $10,000 a year for the cost-accounting department, but the accurate knowledge acquired put the business on a profitable basis. The results showed several kinds of product that were sold at a loss everywhere. These were immediately discontinued. Some were unprofitable only in certain States where competition was keenest. These articles were no longer sent to such States. The price-list for finished parts had to be completely revised. Not long after the expert had installed this system he was asked to look over the plant of a rival house, but he refused to do so without the first client's consent. "Go ahead," said that gentleman; "I was really at the bottom of their coming to you. They're my worst competitors and I know I can manufacture just as cheaply as they can. They've been cutting into my profits by selling below cost, and I know it and they don't. I want you to show them as much about their costs as you showed me about mine and then we can both make more money."

In carrying out a reorganization of this kind, the first act of an expert is to make an actual study of a plant before forming plans or declaring what he can do. I followed one in a day's examination of a factory the superintendent of which wanted an accurate cost system. He began at the place where the raw material came into the factory and followed each step in the process of production to the shipment of the completed article. A trained eye and a quick tongue rapidly got the important facts in each department.

"What do you do with that scrap?" the expert asked a workman, pointing to a heap of ends and pieces of boards.

"We burn most of it; some of it we can use on small jobs," he replied.

"Could you keep track of the amount you use?"

"Why, yes, if I had to. I can tell pretty nearly the number of feet in a piece by looking at it."

"How would you keep account of that?" the expert asked me.

I confessed I saw no way.

"I will tell you later," he said with a laugh. "It's simple enough when you see it."

A foreman in one room was very sure it was impossible to keep any record of different orders.

"You see," he explained, "the orders come in here all broken up—a few on this and a few on that."

"Yes," said the expert, "but that is just one of the things that will have to be changed."

And so it went from department to department. When we came out he outlined to me even in detail just what he thought could be done.

"That sounds very easy," I said, "but wait and see what the directors say to it."

When he touched on the question of accounting for the waste lumber used on other orders, one director broke in—"I don't see any way to account for that practically."

"It's too small a thing to bother with," said another.

"Nothing's too small to omit if you can do it easily," replied the expert imperturbably. "I think the value of scrap ought to be credited to the cost, and it can be done by simply deducting it from the general expenses of the carpenter room."

And after an hour's discussion and suave, sound arguments a contract for devising and installing the system was signed.

It is the installation of a system that demands tact, patience and personal enthusiasm. Employees are generally averse to changing the methods; and to make any system go needs the active coöperation of all. Continual objections have to be answered and a repetition of explanations made *ad nauseam*.

"I don't like this system at all," said a young woman in an accounting department.

"Why?" asked the expert.

"Because you have to be so awfully accurate," was the reply.

The keeping of stock-rooms and a stock account makes a monthly balance possible without taking an inventory. Moreover, it affords an easy, almost automatic way of always keeping the proper amount of stock on hand without overstocking. The manager fixes a minimum below which any kind of stock shall not go and a maximum over which it shall not go. The stock-clerk is directed, whenever the balance of the stock-book shows that the minimum is approached, to order enough to bring the amount on hand up to the maximum. A business expert always arranges thus to "make things take care of themselves," as one factory employee remarked to me.

With an increase in any business always comes a necessity for more complex organization and for subdivisions of responsibilities. The duty of attending to details must be given over to subordinates. Less and less as American industries grow can the executive heads keep in touch with the daily course of the work. But a cost system properly handled gives them a way of closely watching details. A certain iron company which had an elaborate cost system called in an expert just for the purpose of organizing the vast amount of detailed cost-items that were collected each month. "Look at that," said the vice-president, pointing to a hundred pages of minute statistics. "Once a month I get one of those. From it I am supposed to know just how things are going, but as a matter of fact I can't see the forest on account of the trees. I want a report that will show me any unusual increases in expenses or any unusual saving, and I don't want to dig it out of that mass." The expert carefully studied the reports covering many months, and in each class of expenses decided what was an average or normal expenditure. Each week the clerks who footed up the expenses merely indicated on the report (by the use of certain characters) the amount of the variation from the standard. A report organized this way covered only fourteen pages. A mere glance showed the particular places in need of special investigation.

Some of the most remarkable achievements of production engineers, to turn to another phase of their work, have been in gathering and systematizing data for fixing the price of piece-work. The great difficulty with this theoretically ideal plan of remuneration has been a lack of accurate information on which

to base a satisfactory standard. The price has been generally set by estimates of the time it should take a workman to do the work. If some men increased their output largely, the employer almost invariably cut down the price, feeling that the estimate for time required had been too high. This has happened so often that labor-unions are generally opposed to the system, and often put a limit on the amount any man may turn out. A certain expert, one of the first of production engineers, in reorganizing a steel plant, had the workmen in one department timed on absolutely every step of their work. Even the time taken to lift a piece of iron from the floor and place it on the planing-table was kept. For a year and a half these data were collected on all kinds of iron and under different rates, and then a final system of payment was fixed, based on the average. The management were certain that they knew the exact time in which a good man could do the work, and if any employee could shorten it he was welcome to the extra pay. Consequently there was no restraint on effort. A year's trial showed an increase over the production under the daily wage system of 7 per cent. and an increase in wages of 18 per cent.

This astonishing result is still more striking when compared with another mill of the same plant that simultaneously went upon the piece-work system with the price based on estimates. The foreman thought the expert's plan was too hair-splitting. The increase here was only 8 per cent. in production and 16 per cent. in wages. This mill, too, is now in the process of reorganization. This is, of course, an extreme case; most American industries are so well managed that no new system would make an extraordinary improvement. And as a rule it is not firms or corporations that are behind in the industrial race or tottering on the verge of bankruptcy that employ an expert, but prosperous, ambitious institutions that aim at being not merely good, or even better, but best.

It is easy for men accustomed to doing work in certain ways to overlook their disadvantages. It often requires some extra bracing up to induce a manufacturer to expend large sums for new devices and appliances for saving time and labor. The expert often gives just this necessary stimulus. From wide experience and observation he knows about nearly all inventions and mechanical devices. In a certain wholesale hardware house the goods to fill orders were assembled in the stock-room, carried on trucks to an elevator and then down to the shipping-room. An expert spent half a day, watch in hand, keeping the number of minutes the employees wasted waiting for the elevator. "You lose too much time there," he said to the owner. He devised a slanting chute from the stock-room to the shipping-room, and turned a section of the floor into a moving platform leading directly into the chute. A bundle dropped anywhere on the platform was carried to the chute and the force of gravity did the rest. An iron company in Ohio built a new mill in which to finish the rough product of their original plant. There was a hill between the two buildings, so that for years all material was carried back and forth by teams. At the first view of the plant an expert said: "Grade down that hill and put in a railroad." The manager admitted that this plan had been spoken of, but on account of the great initial expense it had always been put off. An accurate calculation showed that the saving in expense would amount to $8,000 a year—enough to pay all the original cost in less than three years.

While talking one day with the general manager of a Chicago company who are business printers and manufacturers of loose-leaf ledgers as well as expert devisers of business systems, I saw a clerk lay on his desk several orders that were nearly due. Mr. —— called up the superintendent of the factory by telephone. "What is being done on order No. ——?" In less than five minutes came the answer that order No. —— had gone to the pressroom two days before and would be ready for shipment the next day.

"Your superintendent must know his business," I said.

"He's a good man," replied Mr. ——, "but it was system that did that. He never left his office to find out about that order. You'll see how it was done when you visit the factory."

And I did. Each factory order had attached to it a series of tags, one for each department through which the work would have to go. The foreman of each room

tore off his tag when he received the order and placed it in a box bearing the number of the machine to which the work was assigned. As soon as it was completed, the tag was returned to the office and entry made on the duplicate copy of the order. The superintendent, by merely looking at these copies of orders, could see exactly in what stage of completion the work was. For more minute information he telephoned to the foreman of the room where the order was, and the foreman, knowing the machine on which the work was being done, could immediately learn from the workman just how much had to be done on it. This is a typical example of the sort of system a business expert introduces into any industry. Even minute odd details receive attention. A small country manufacturer, for example, complained that his local competitors followed his shipments to the freight depot and stole the names of his customers. He did not want to ship the goods to his own order. The expert drew up a tag in the shape of an envelope, having inside the name of the customer and his address. Outside was a notice to the freight agent at the town of destination to open the tag as soon as the goods arrived.

The successful experts of today are all men who gained their experience in business and who grew gradually to be real experts. They are men materially endowed with an eye for organization, for cutting short corners, and for seeing facts that other men's eyes are too much dulled by custom to see. They realize the value of a minute. While I was dining one day with an expert at the Auditorium Hotel in Chicago he suddenly flashed this question at me: "Have you any idea how many miles our waiter has to walk to serve us?"

I had not.

"Well, I have," he said, "and if the man who built this hotel had known, he would have arranged his kitchen and storeroom and the shape of this dining-room differently. A short time ago I figured out exactly how far a waiter traveled to serve one dinner—it was a little more than two miles and a half. That's just the way we go at a factory for physical reorganization. We plot the whole thing and figure it down to feet and inches and minutes and seconds." Experts solve large problems by just this science of the minute and the mastery of details. They have blazed out the way for a new profession, the principles of which can be taught. Most of them have many young men under them whom they are training. One company give each man who enters their employ a month's instruction by lectures before he goes out with their trained men to see and help in actual work. The Massachusetts Institute of Technology has opened a course in industrial management. Young men can now fit themselves for business in the same way that a man fits himself for law or medicine Modern business has become a science.

THE UNITED STATES A NATION OF INVENTORS

THE WORKINGS OF THE AMERICAN PATENT SYSTEM—NEARLY AS MANY PATENTS ISSUED AS IN GREAT BRITAIN, FRANCE AND GERMANY—THE COMMERCIAL SUCCESS OF PATENTS—ODD INVENTIONS

BY

CHARLES D. DAVIS

SPEAKING in the Senate, in 1884, Senator Platt, of Connecticut, paid this splendid tribute to the United States patent system: "To my mind, the passage of the act of 1836, creating the Patent Office, marks the most important epoch in the history of our development—I think the most important event in the history of our Government from the Constitution until the Civil War."

A few years ago Japan sent to the United States a special commissioner to investigate

our patent laws, and when asked by one of the official examiners in the Patent Office, Mr. P. B. Pierce, why Japan wanted a patent system, he replied: "I will tell you. You know it is only since Commodore Perry, in 1854, opened the ports of Japan to foreign commerce that the Japanese have been trying to become a great nation, and we have looked about us to see what nations are the greatest, so that we could do like them; and we said, 'There is the United States, not much more than a hundred years old; what is it that makes the United States such a great nation?' And we investigated and we found it was patents, and we will have patents."

In the last census, for the first time, a special report was prepared by Mr. Story B. Ladd upon the relation of patents to manufactures, which shows not only that manufactures have grown approximately as patents have grown, but also that with each succeeding decade the quantity of material handled and the quantity of products turned out per wage-earner have increased. In referring to the clause in the Constitution on which the patent laws are based, Mr. Ladd said: "The germinating principle of this clause of the Constitution has vitalized the nation, expanded its powers beyond the wildest dreams of its fathers, and from it more than any other one cause has grown the magnificent manufacturing and industrial development which we today present to the world." And in 1895 Commissioner of Patents Seymour declared, "It is a satisfaction to note that the American patent system is generally conceded to be the most perfect in the world." Opinions and statistics, such as the foregoing, backed up, as they are, by the fact that nearly all the great nations are closely patterning after our system, put it beyond doubt that our patent system has performed a most extraordinary part in aiding this country to gain the primacy of the world in the industrial arts.

The writer is convinced that our patent laws have played a more important part in the development of the industrial arts than even protective tariffs, since not only do the patent laws promote investment but *invention* as well, and it is mechanical invention that is obviously at the bottom of all our industrial progress. Furthermore, there has been a practically steady increase in the number of patents granted and in industrial investments since the establishment of the system more than a hundred years ago, whereas there have been violent fluctuations in the tariff in that period.

It is a mistake to believe, however, that the giving of inventions to the public free of royalty, is wise. It is to the last degree detrimental to the public. It defeats the very purpose of the donor, for there is no better way to kill an unexploited invention than to make it everybody's business to exploit it. New inventions, if they are successful at all, generally have to be actually forced on the public, and no man will invest capital thus to test its commercial value and create a market unless he has an assurance of a monopoly to pay him both for the outlay and for the risk. Mr. Astor, by dedicating his patent for marine steam-turbine to the public, took the best course possible to retard or forever postpone its commercial development, and in that way lost to this country the advantage it would have gained from the immediate exploitation of his engine. No more dire disaster could happen to this country than that its unexploited inventions should become public property.

It is true that the other great manufacturing nations have patent systems, but they have never fully realized the important function of a patent system. All important foreign nations seem to have been especially careful to impose just those conditions on the grant of patents as would be most certain to render the system unpopular with the masses, forgetting, seemingly, that the function of a patent system is primarily to encourage inventions, and that inventive or creative minds are just as apt to be found among the masses as among the well-to-do. These conditions consist usually of annual taxes and requirements as to working the patents within short periods after granting, and they have been found so onerous that only in rare instances will you find the poorer inventors abroad with courage enough to invest in patents. They, or some inventor they have heard about, have tried it before and have been compelled to permit their patents to lapse because unable to comply with the conditions of their grants before capitalists could be obtained to exploit their inventions; and so these foreign systems have become so unpopular with a large portion of the inventing public that a vast amount of embryo creative talent is wasted for the lack of encouragement.

On the other hand, the United States grants patents without requiring the performance of any conditions afterward, and as a consequence our patent laws have the approval of all classes, this popularity even extending to foreign countries, as is evidenced by the fact that the number of patents taken out here by foreigners is steadily increasing. About 12½ per cent. of the patents granted in 1902 were taken out by aliens. Of course, in the operation of every large branch of government machinery there is certain to be some severe criticism of its workings, but the critics of the patent system are exceedingly few in comparison with the scope of its field of work, and these few are mostly confined to those disappointed inventors who have displayed poor business ability in employing unskilled patent solicitors or in making bad contracts for the exploitation of their inventions.

It is this increasing importance of the patent system that renders the work done at the Patent Office at Washington of wide public interest. All applications for patents must be filed in this bureau and be passed on by one of the thirty-eight division-chiefs therein. To realize the enormous amount of work done by the Patent Office a mere glance at some general statistics is sufficient. In 1902 there were filed nearly 50,000 applications for patents. Each one of these applications was scrutinized with great care, and a search of prior patents and publications was made in order to pass upon the question of operativeness and novelty, for under our system only novel and useful inventions can be patented. The total patents granted last year was 27,776, and the total granted since the institution of the system up to January 1, 1903, was 727,477. This total is about one-third of all the patents issued in the world, nearly as many as in Great Britain, France and Germany together, and more than four and a half times as many as in Germany, the only one of our near competitors which makes "novelty searches" before granting patents.

It is plain from the foregoing figures that the industrial pulse, not only of the United States, but in reality of the entire world, may be felt at the Patent Office at Washington, for practically all important inventions pertaining to the industrial arts are disclosed to the Patent Office examiners before they are made public, and the examiners can therefore tell the direction and extent of improvements long before the public can. Activity in any line of manufacture is immediately made manifest by the increased number of applications in that line, and, on the other hand, no one knows sooner than the patent examiners when a craze or fad is on the wane. For example, no sooner had the application for bicycle improvements fallen off than the motor vehicle applications began to come in with a rush. The records of the Patent Office show a continuous sequence of just such pulsations. But in spite of these pulsations, there has been a steady increase in the annual number of patents granted, and, most significant of all, a steady increase of those granted to foreigners. Not only has the financial centre of the world crossed the water, but the industrial centre also.

Those unacquainted with the workings of the patent system can have no adequate idea of the effect of the stimulus it affords to the inventive genius of the country. It has converted the country into a veritable hotbed of invention. There is hardly a cross-roads town in the country without its inventor, and the thing is on the increase—in fact, has only just begun. The system has so developed the talents of a large number of men that they have adopted inventing as a *profession*. Their creative faculties have become so highly sensitive that they have but to concentrate their attention upon a mechanical problem to obtain a more or less perfect solution of it. Many expert inventors have obtained an extraordinary number of patents. Thomas A. Edison is no doubt the most prolific inventor the world has ever known, having so far obtained nearly 800 patents for as many independent inventions. Francis H. Richards has secured nearly 700, and the lists of Elihu Thompson, George Westinghouse, Edward Weston, Charles J. VanDepeole and others run into the hundreds.

The patent laws of the United States are founded upon the clause in the Constitution which gives Congress the power to promote the progress of the useful arts by securing to inventors for limited periods a monopoly of their inventions. The law requires that a full, detailed drawing of the invention, where it is susceptible of illustration, and a full and peculiarly arranged and worded specification

shall be filed in the Patent Office, together with an affidavit to the effect that the applicant is the first and sole inventor of the device sought to be protected, that the invention has not been in public use or on sale in the United States for more than two years prior to his application, and that the invention shall not have been patented or described in any printed publication in this or any foreign country for more than two years prior to the filing of his application. There are other less important conditions which need not be referred to here. When this complete application reaches the examiner having charge of the particular art to which it pertains, he makes a "novelty search" through such prior patents and publications as are available, and if he finds the invention novel and properly defined he allows the patent. The total government fees are $35, and the patent is granted unconditionally for seventeen years, at the end of which the invention becomes public property. These seventeen-year patents are known as mechanical or utility patents. There is another class of patents, which are granted for shorter and variable terms, known as "design" patents, but these are of minor importance, as their function is to protect merely ornamental devices or patterns, and they therefore partake more of the nature of copyrights than of patents.

It happens frequently that the applications of rival inventors meet in the Patent Office. In these cases the Patent Office institutes "interference" proceedings for the purpose of ascertaining which of the rival inventors is the first inventor. This proceeding is carried on exactly as a case in court, in that the parties to the contest are given opportunity to present evidence upon the question of priority. A large number of these contests are constantly being fought out by inventors who have independently conceived and developed the same invention. It is a curious psychological fact that inventors in different parts of the world should frequently not only conceive the same idea, but actually embody it in mechanical structures practically identical; but these strange conflicts are of such common occurrence at the Patent Office that the officials have ceased to wonder at them. In some cases the similarity even goes to the minor details of a comparatively complicated structure, and in some instances there is but the difference of a day or two in the dates of conception and reduction to practice. When an art is especially active, as in the case today with motor vehicles and space telegraphy, as many as a dozen applicants will often be fighting for the same thing.

There is now going on a priority contest in which the three contestants reside respectively in Germany, Maine and California—so far apart that there can be no question as to the independence of their conceptions. The invention is a unique form of rotary engine involving a very radical departure from previous forms, so that the invention can in no sense be said to be the expected or necessary step in the evolution of the art.

Of course, in all this immense grist there must be some grit. Just what proportion of patents "pay" it can never be practical to ascertain. The writer has for years been considering how to obtain statistics as to what proportion of the granted patents cover successful devices, but the vagueness of the subject precludes satisfactory results. It is difficult at the outset to define "success" when applied to patents. Many confuse it with operativeness or mechanical success, and others have such an exalted idea that only those patents which make fortunes for their owners are successful. It is not fair, it would seem, to say that only those inventions which are put on the market in paying quantities are successful, because the successful exploitation of a new thing requires more than a need for it; it requires also much expensive work to create a demand for it. It would seem, therefore, that it is but fair to say that an invention is successful if tests demonstrate beyond a reasonable doubt that, if backed by capital to an amount commensurate with its nature and by reasonable energy, it would pay to push it.

There is no doubt that much labor and money are wasted in inventing and patenting things that are chimerical and impractical, but this evil is fast being lessened with the spread of knowledge. The Patent Office officials see fewer and fewer perpetual-motion and aerial-navigation "cranks" as the years go by, and it is probable that in not many decades from now a real crank will be a curiosity even at the Patent Office. But even when the crop of cranks was greatest, which was probably in the '70's and '80's, the waste resulting from their harmless

vagaries was infinitesimal compared with the wonderful work wrought by American inventors.

Although the Patent Office uniformly winnows out the inventions which lack utility, it very sensibly makes a distinction between mechanical utility and commercial utility, and solves all doubt in favor of the applicants. Consequently a few queer patents that a layman would consider useless have necessarily been allowed. One of these is a patent numbered 541,409, which is for a gallows so constructed that the weight of the victim on the trap automatically sets in motion devices which spring the trap after a suitable interval, thus causing the culprit to execute himself. Two other curious patents are devices for making rain by exploding bombs high in the air; another is for a hat-tipping device which automatically raises and tips the hat when the wearer bows; another is a mechanical appliance for putting on overcoats, and there is another for automatically letting down a latch-key from an upper story at a predetermined time in the morning to enable the milkman to deposit the milk indoors, the key being automatically raised when the milkman departs. But these odd and commercially useless patents are so few that they can safely be ignored.

In addition to its economic value, the patent system is really a great uplifting force—it develops *men* as well as industries, for no man can consciously bring into existence a new thing and not be the better for it—and the result is that by reason of the peculiarly democratic nature of our system in comparison with foreign systems, this civilizing force affects all classes. In fact, it would appear that the system is especially adapted for reaching the very class it is most desirable to help, as by far the larger number of inventors are men of modest position in life. The psychological explanation for this would appear to be that invention is purely the product of the subconscious mind, and strongly subconscious individuals notoriously lack those qualities that make for success in the regular lines of modern business.

There are today many thousands of inventors throughout this country devoting almost all their time to pondering over inventions, and as they see their creations develop, as they see one difficulty after another overcome under the operation of their creative faculties, and new things that never existed before come into being, they derive an exquisite mental pleasure which only genius knows—a pleasure of that higher kind which has not *ennui* for its aftermath, and which enables them to get more out of life than almost any other class of workers.

It is a fact of common knowledge that a very large majority of our famous inventors began life in a modest way, if not in actual poverty. Edison and Bell were poor young men; now they are wealthy and have world-wide fame and prestige. Mergenthaler, inventor of the linotype machine, started poor and died a short while ago with as much means as any man can reasonably need. Berliner, inventor of the transmitter and the disk phonograph, began his career as clerk in a Washington store; now he has means and prestige. The list could be extended indefinitely. The writer knows a young man who started his career as machinist in the Brooklyn Navy-Yard; now he is an expert in match machinery, having made many inventions in such machinery and obtained about thirty patents in the past three years. He is now organizing a $3,000,000 company to manufacture matches by his improved methods, and he will undoubtedly "get there."

The evidence as to this developing and educative influence of the patent system is overwhelming. Aside from the fact that there are a large number of men throughout the country who have raised themselves spiritually, intellectually and financially, the Patent Office records show that women also have been reached. About 3,500 patents have been granted to them, and the annual number is on the increase. And, further, a considerable number of patents have been granted to Negroes, a race which for thousands of years before it came under our democratic institutions did nothing in the way of advancing the arts. The number of patents granted to this race cannot be ascertained without exhaustive inquiry, as applicants for patents are not required to state raceship; but a partial inquiry some years ago resulted in finding between four and five hundred Negro patentees.

It is the universality of our patent system that makes it preëminent. If it be properly handled, it will enable us to keep the primacy in the industrial arts for a long time to come.

AMERICAN OPPORTUNITIES IN AN INTIMATE KNOWLEDGE OF CHINA

WHY TRADE REQUIRES AN INTIMATE KNOWLEDGE OF THE THOUGHT AND THE CIVILIZATION OF THE CHINESE PEOPLE—THE ADVANTAGES POSSESSED BY THE JAPANESE —WHY AMERICANS SHOULD STUDY THE CHINESE LANGUAGE AND ACQUIRE THE CHINESE POINT OF VIEW

BY

DR. FRIEDRICH HIRTH

PROFESSOR OF CHINESE IN COLUMBIA UNIVERSITY

EUROPE and the United States have spent millions on a campaign to open free intercourse with a nation whose population constitutes more than one-fourth of the population of the inhabited world. Now China has declared her willingness, following the example of Japan, to reform her government and to adopt the formerly abhorred civilization of the West. The rate at which progress in government and military and civil life in China has set in has no precedent in history.

What the world expects from this movement is benefit on both sides—commercial benefit based upon the political advantages each party may succeed in wrenching peacefully from its rival. The clamor of arms is a matter of the past and a friendly war has begun in the arena of trade.

It would be a grave mistake if western nations, conscious of their superiority in civilization, should think that they could rest on their laurels and calmly watch events in the Far East. For on the battle-field of commercial competition he will come off victorious who has joined battle best prepared.

No observer who has closely watched events in the Far East since the return of the Court from Si-an-fu will deny that the reform of public life has long ceased to be a mere phrase. China is determined to imitate the example of her neighbor. Japan, within a few decades, by similar efforts, has, from what used to be looked upon as a nonentity, grown into a power to be reckoned with, a valuable ally of her friends, an opponent to be feared by her foes, and a serious rival to Europe and the United States in the field of commerce. Whether China will succeed in becoming the equal of her eastern rival remains to be seen. What nobody can doubt is that she is making serious efforts to reach a position similar to that of Japan.

Japan holds a position in China which it will be most difficult for other foreign nations to compete with. The superior political power wielded by other foreign governments at home may go far in strengthening the position of ministers in Peking, but it is more than counterbalanced by the local advantages awaiting Japanese enterprise in China. Close neighborhood probably plays a conspicuous part, as with Russia; but the backbone of Japanese influence, which sooner or later will throw us all out of the field, is the fact that, in spite of all the recent changes, the civilization of Japan has, from the outset, stood on the shoulders of that of China. It is hardly necessary to recall that the greater part of Japanese philosophy as a science is built up on Chinese thought of the past, and that with it most of the other branches of this interesting civilization, such as art and industry, are derived from the Chinese. In the great change which public life has undergone in Japan one important fact must be noted: Japan has adopted western civilization, it is true, but she has not, for all that, discarded Chinese education. The kindred feeling which has for centuries past united the two nations will continue to influence generations to come. If we study the latest organization of the educational system in Japan, we are bound to be struck by the remarkable feature that, far from blotting out old methods, the new organization makes

the study of Chinese literature even obligatory in the colleges. I look upon this as much more than a compromise with old traditions. The legislator who placed on the shoulders of students what at first sight might be declared a useless burden, the toilsome study of Chinese literature, probably had good reasons for doing so, and must have been aware of the benefit accruing from it to his people. The superior command of the language places the Japanese, whether merchant or diplomat, at a great advantage, when compared with his foreign rivals. But more than this: every educated Japanese is regularly imbued with ideas derived from Chinese literature. This gives him quite a different standing in the eyes of the Chinese when compared to other foreigners, who have to work without such knowledge. Nothing proves the correctness of this view more than the events of recent years. At the present moment China is in a state of compromise between her past and her future life. She has placed the education of future generations not in the hands of Americans or Europeans, but of those who are most likely to teach them new things without destroying the old—the Japanese. The great National University of Peking, the creation of the Emperor Kuang-sü, is destined to be the model of the several educational institutes all over the empire, and it is a matter of course that its constitution is of the greatest importance for the future of the educated classes in China. What these future generations will be must necessarily depend upon the talent, the character and the good-will of their teachers. It is a melancholy fact that the European staff, who have for many decades done excellent service in connection with the University, have been summarily dismissed. Their places will be chiefly taken by Japanese. The Chinese Government has thereby declared its future policy as regards education, and the reëmployment of some of the European educators in the provincial high schools, though a slight proof of good-will in some quarters, cannot make up for the elementary influence bound to emanate, in the long run, from the official model in Peking.

There can be little doubt that the causes of this declaration are connected with the superior intimacy of Japanese teachers with the Chinese language and literature. Any European government which would have been in the position merely to point to some fifty scholars thoroughly familiar with the Chinese language spoken and written, would have had a great advantage at the present moment by being able to furnish men who could compete with Japanese instructors. The moral influence of any foreign power in China could have been materially increased in this direction. Guns and ironclads are good in times of war; when peace prevails, they may be shown by way of threat; but the safer means of obtaining political advantages seems to consist in the perfection of the peaceful instruments by which a nation may assert her superiority. Among these there is none greater than the possession of a large number of individuals who, similarly prepared as the rival instructors of Japan, can commend themselves as teachers in the several military and civil branches, a knowledge of which China is now so eager to solicit. The Chinese Government has quite recently appointed a Japanese professor to draw up the new code of law for the Chinese Empire. Why not an American, a Frenchman or a German? There can be no doubt that authorities fully as competent might have been secured in other countries; but men who are both willing and capable of making due allowance for traditional prejudices will never arise from a country where the study of Chinese institutions is so much in its infancy as with all of us, except Japan.

The next ten years will see thousands of intelligent Chinese well-versed in foreign languages. This gives China an advantage over the foreign world at large which it did not possess formerly. What have foreigners done so far to be the equals of those with whom they will have so much business to transact? Every Chinese who has a command of the English language calls for a citizen of the United States or Great Britain who has equal command of the Chinese language. But it appears that what should have been done a generation ago is at last recognized as a necessity in different parts of the western world. Satisfied with training the most necessary material for interpreters' work in legations and consulates, foreign governments have formerly paid but little attention to this question.

The totally different position now occupied by us through our relations with China

in public life has made itself felt in a movement favoring the study of Chinese language and civilization far beyond government purposes. The general public begins to realize that a good knowledge of Chinese may be turned to excellent use in many ways in China. Governments, commercial guilds and individuals have shown their patriotism by providing the means for establishing university chairs, where such were not in existence before, and strenuous efforts are being made to increase the opportunities of studying in the Oriental colleges already existing for that purpose. Russia has established an Oriental college chiefly devoted to Chinese studies in Vladivostock. The Chair of Chinese, of traditional fame, has been recently filled again by a competent scholar in St. Petersburg. In Germany, Chinese is taught in two universities, and is, moreover, equally well represented at the college known as the Oriental Seminar in Berlin. England has four university chairs, at Cambridge, Oxford, London and Liverpool, and a college in London. In Italy, Chinese is taught in the Universities of Rome and Florence and at a special college in Naples. The Netherlands have a Chinese chair at Heiden, and, up to a short time ago, sinology was represented in Louvain, Belgium. France, which may well claim to have furnished the cradle of our science, has perhaps been the most active among the foreign powers in appointing her best Chinese scholars at her university chair in the Collège de France and in her Oriental schools in Paris and Lyons, and in furthering with great assiduity Chinese studies in her colonies in Tungking. In Austria, Chinese is taught at the Oriental Academy of Vienna, and the United States has followed suit with several chairs within its dominions. To many these seats of Chinese learning may seem more than is necessary for what, in their eyes, is an occult science of little value. The politician who looks into the future will think otherwise. The time is approaching, and is sure to come, when we shall not have enough men to answer the calls for Chinese work. For Chinese work, done by men well trained to do it, will be required in that general competition that will accompany our intercourse with China. To be able to furnish teachers of western civilization in any shape will secure a valuable privilege to every western nation undertaking the work of training them. But trained they must be in order to compete with their Japanese rivals. The Chinese are fully aware that the first authorities in every branch of public life and of science are to be found in Europe and the United States. Why, then, do they give the preference to the Japanese instructors who, in their turn, are merely the pupils of the former? The answer is, that to be of any use in attempting to spread foreign knowledge among the Chinese it is not sufficient to be an authority on the subject, but one has to know the language of the pupil that is to be. "Language" should be understood in its broadest sense. For any one wishing to pose as a teacher in China it is far from sufficient to be familiar with the spoken language as an art which may be learned in a mechanical way. The teacher must not only know what he is about to teach; he must also know, to a certain extent, the old doctrines which his new method is destined to replace. He who undertakes to teach the future mandarin the methods of foreign government must be well acquainted with the old methods of Chinese government and the history of its development. The missionary desirous to argue about the superiority of Christian thought can double the utility of his work by rendering himself familiar with the study of Chinese philosophy. New ideas cannot be brought home in our own colleges, even to an intelligent mind, without being illustrated by comparison, example and observations of every-day life, and whoever wishes to make use of this valuable help in China has to be thoroughly acquainted with Chinese life, literature and history. For these are the indispensable means of rendering a European familiar with the peculiar run of thought of a Chinese. Moreover, a Chinese will have twice the confidence in a man, and look up to him with double respect, if he knows that his friend has learned to think well of what has always been and will ever be dear to him, his native literature. This is one of the main reasons why the Japanese will exercise a much greater influence on the new development of spiritual life in China than any of the rival nations, and this is the point in which, in order to secure full success, we should imitate them as much as our means will permit.

Private individuals who may try to seek their fortunes in China will all find that it

pays them to add to their natural gifts a sound home preparation. The time is long past when travelers set out on long journeys to unknown and distant lands with nothing but personal pluck and love of adventure. The traveler who wishes to bring home results worth looking at has to be well prepared in the art of making bservations, geographical, geological and historical. It would be looked upon as a false start if any one were to set out on a serious journey with the idea that he could study his work while on the way. A student of Chinese may learn a great deal in China, and yet, if he be left to himself, it will be very little when compared to the rate of his progress that may be secured by methodical preparation at home. Let a man start as an engineer, or as a merchant, or as an intending official, he will seldom succeed in turning whatever good qualities he may possess to the best account without a good knowledge of the language. On the other hand, a man thoroughly familiar with the speech, thought and literature of the Chinese may set out almost without that letter of introduction which is to secure him a position. He is sure to find one through his competency. Other conditions being equal, the man who has the advantage of a command of language and literature has decidedly more claim to success than he who has not.

This last remark applies especially to that class of workers in China who, more than all others, may contribute toward increasing the prestige of their co-nationalists, the diplomatic and consular representatives of the several treaty-powers. I do not wish to cast the slightest slur on the work of officials to whom hitherto the responsible duties of national representation have been entrusted by their several governments; individual talent and general experience in diplomatic work, coupled with the personal confidence placed in the business capacities of the consul or minister that is to be, should, of course, stand chief among the reasons for his being selected. But the events of recent years call for increased attention to the subject of education, not only in the case of government interpreters, but also of the higher officials expected to study and report upon that most complicated institution, the Chinese Government. It is well known that Great Britain and France select their consuls and occasionally also their ministers and secretaries of legation out of the rank and file of the Interpreters' Service. I am inclined to think that this is the natural result of the greater responsibility felt by these governments in connection with Chinese matters. Great Britain has always enjoyed and continues to have the lion's share in the foreign trade of China, and France is assiduously bent on increasing her prestige in the southwest. A great number among their officials are prominent Chinese scholars. Men like Sir Harry Parkes, Sir Thomas Wade, Sir Robert Hart, J. McLeavy Brown, W. F. Mayers, Chaloner Alabaster and others, whose names have become household words in Chinese politics, would not have become what they were and are but for their primary education in Chinese linguistics. If others, who did not enjoy this advantage, have done prominent work, they have been assisted by natural gifts which placed them in the position to grasp with an intuitive eye what many will not realize but after years of laborious study; but who can say what *they* might have attained, had they been brought up as experts from the outset?

The several nations whom we may call rivals in the Far Eastern trade have each begun on a still modest scale to provide for the technical education of such students. Results will not come forward all at once. But let a number of years pass and the effect of such opportunities being given will show itself in the *personnel* at the disposal of governments in their Chinese services. Patriotic citizens of the United States may contribute very materially toward the future good relations between the two nations by furnishing the means of establishing Chinese chairs at as many universities as possible. Chinese studies are nowadays much more closely connected with actual politics than Sanscrit literature; and yet, how few universities have ever thought of opening their doors to the devotees of that great, still-unworked mine of Asiatic information, the literature of China, whereas none is considered complete as a seat of learning which has not its chair of Sanscrit! If political reasons must furnish the pretext for sacrifices brought in this direction, as some authorities seem to hold, they certainly cannot be said to be wanting in answering the question, why to study Chinese.

THE EARNESTNESS THAT WINS WEALTH

A PICTURE OF THE START AND THE RISE OF THE NEWLY ARRIVED JEWS IN NEW YORK — THEIR DESPERATE EAGERNESS TO GET ON AND THEIR JOY IN A LAND WHERE THEY ARE FREE TO TRADE—A STUDY IN THE MAKING OF AMERICANS

BY

HUTCHINS HAPGOOD

IT was not so very long ago—in the eighties—that the Jews in the City of New York were comparatively few, even on Hester Street and the vicinity where they are now simply multitudinous. The Irish were then conspicuous in that part of the city, and they deeply resented the intrusion of the Jews. One of the first synagogues was at what is now 101 Hester Street. The Jewish place of worship was on the first floor, and the basement was occupied by a saloon kept by an Irishman, a resort of pickpockets who fervently desired to drive out the Jews from the synagogue in order to make room for a faro game on the first floor. They therefore made a most horrible din whenever the Jews gathered for worship. But it did not succeed, and it was the Jews who finally drove out the thieves. In those days, too, there stood at the corner of Allen and Hester Streets a building which served as the headquarters of a well-known Irish politician. Occupying that place now is a Jewish shop.

It is not only the Irish who, in that part of the city, have gone down before the march of Israel, but all the other races of the unchosen. It is the story of the advancing Jews and the fleeing Gentiles. There is a certain block on Cherry Street, however, that does not contain, it is said, the home of a single Jew: it is an Irish stronghold.

Hester and Ludlow Streets, east Canal and east Grand Streets, and twenty other downtown streets, are now almost exclusively the home of the Jews. And it does not stop with downtown. Go away up to Ninety-eighth Street and beyond, along Madison Avenue; indeed, anywhere on the upper East Side, and the same tendency is noticeable. Almost anywhere on the East Side from Harlem to the Battery this strange people are much in evidence. Go even to the West Side and walk up Sixth Avenue through the shopping districts in the middle of the town and look narrowly at the street merchants, at the men who are selling shoe-strings, neckties, sausages, candy and a thousand and one other things—look at them closely, or ask them questions in bad German, and you will generally find they are Jews, and, for the most part, Russian Jews. There are, to be sure, many Italians, too, and some Greeks, but they sell very little except fruit. The Jews and the Italians have a virtual monopoly of the peddling business. In two respects the Italians more than hold their own against the Jews. They almost entirely monopolize the fruit-peddling business and they practically entirely monopolize boot-blacking. Again walk up Broadway and look at the names of the big clothing houses and other large business concerns and you will wonder if anybody but the Jews are in business.

When the Jewish immigrants arrive in the United States an immense amount of energy is let loose. Shut up for generations in their orthodox country communities in Russia, Gallicia or Rumania, with no opportunity to expand in any way, they come to the land of freedom literally loaded down with stored vitality and ambition. Sensitive to the American environment, they rapidly take up the great American interests and pursue them with greater energy than the native-born Americans themselves.

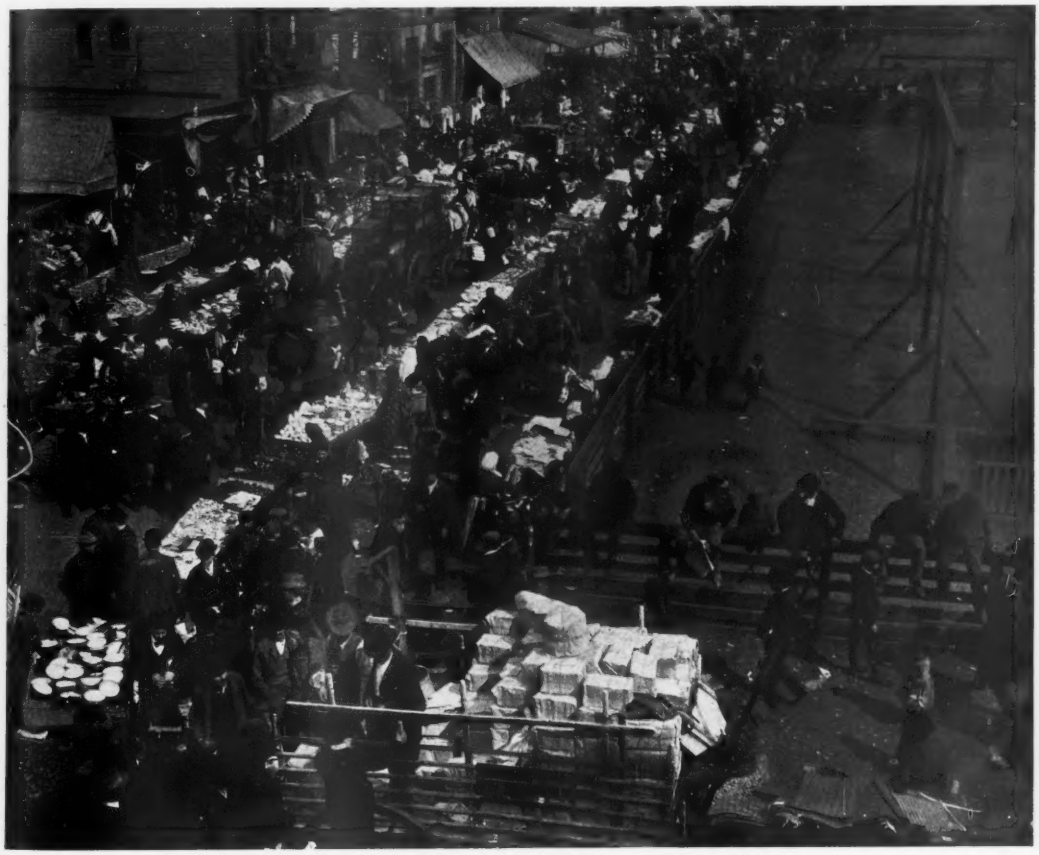
Go to the great push-cart markets in Hester and Ludlow Streets where they join at the northwest corner of Rutgers Square, shown by our illustrations, and study the people you see there. You will see strange types, but

you will also see how strangely Americanized they are becoming, impelled by keen interest and ambition. When you notice that practically everybody is in business, you will understand why practically everybody is, to a greater or less degree, in spirit an American. For what is there that is distinctive in the American character if it is not the spirit of expansion in practical affairs, the optimistic, whole-souled, almost religious passion for business?

Under this compelling influence even the instinctive Yiddish of the Russian-Jewish immigrant falls off, after a few short weeks in this country, from its native purity. The old orthodox Jew, devoted to the Talmud and to prayer, is in America only a short time before he begins to sprinkle his Yiddish with a few English words, badly pronounced, one of the first of which is "business." Then, too, the quality of the Yiddish dialect itself is quickly affected by our environment. Those Jews who know the dialect thoroughly tell me that they can perceive how long an immigrant has been in the country by the quality of his Yiddish alone.

The Americanized rabbi is one of the most entertaining products of the conditions in this country. Many of these interpreters of the holy law remain steadfast, but there are others who become so thoroughly American in spirit that they are stigmatized in the quarter as "rabbis for business only," and as such are frequently satirized on the popular Yiddish stage.

So, too, with the old woman of orthodox faith. Wearing no hat in the old country, she has not been in New York a month before she begins to make compromises. A volume might be written on the evolution of the



THE PUSH-CART MARKET IN THE NEW YORK GHETTO
At the corner of Hester and Essex Streets

STREET VENDERS IN THE SHOPPING DISTRICT

Jewish woman's hat in America. Throughout the crowded streets you will notice these old people—all eagerly engaged in business, the old man bargaining, perhaps, over his push-cart bananas, the old woman busily trying to sell her fish; both strangely eager, strangely alive, for people who have been recently dug up from the quiet and pious life of some little Russian village.

You will see, too, eager boys and girls tending push-carts, running errands, selling little articles, beginning their career as merchants—ambitious little Americans, knowing English thoroughly, and distancing their parents in keenness for "business." After the little fellows have served their apprenticeship by selling shoe-strings, perhaps, on Hester Street, they go a step higher—to Canal Street, then peddle on Sixth Avenue, extend their buisness gradually until they become, perhaps, great merchants on Broadway. The interesting thing about it all is, that the elements of their success are before our very eyes, on the streets. There we can all see what they are doing, how they are doing it, and how inevitable an indefinite extension of their commercial operations is.

WHERE THE FOREIGNERS OF THE EAST SIDE BUY THEIR KITCHEN WARE

WHERE LIVE AND DRESSED POULTRY IS SOLD
Gansevoort Poultry Market

The dominant effect of the life on one of these crowded downtown streets is that of business—eager, militant business, expressing itself in eternal haggling over a thousand kinds of diminutive articles. How all-absorbing this spirit of the Ghetto street is is shown by the way all the Jewish classes—no matter how unbusinesslike they naturally are—are drawn into it. In the crowds shown by our illustrations are not only the men, women and children who are exclusively merchants. A close inspection will reveal types of the scholar, the socialist, the poet, the literary man, the artist, on the one hand; and, on the other hand, the young pick-pocket of twenty, the sweat-shop girl, the agent for the "reliever" business—a business which consists in buying a poor man's new suit in exchange for a very old suit and a bit of ready cash.

The old man peddling from door to door, or tending his push-cart in the crowd, may be a poet or a scholar, with the spirit of universal brotherhood or an impassioned love of the Talmud in his soul. Some of the young women in the crowd may be fervent socialists, strike-leaders and exhorters. Complex, indeed, is this mass of human beings, representing many civilizations and many conflicting tendencies, but united—and this is the

FARMERS SELLING PRODUCE TO GROCERS AND VENDERS AT GANSEVOORT MARKET
The Poultry Market in the background

point—in one great absorbing spirit—the spirit of business; the thing that is rapidly making of them American citizens in fact as well as in name.

How persuasive is that spirit of business! If you will allow yourself to be stopped by some eager-faced Jew who wants to sell you a "reliever"—(he thinks, perhaps, that you are a young fellow who has come to the city on a spree, has spent his money and needs some

A HESTER STREET FISH DEALER

ready cash to return home)—you will be (if not annoyed) charmed by his eloquence, delivered in bad English. I was once literally forced—very much against my will—to sell all my old clothes, practically for nothing, to a Jew whose appealing accents, whose serious, impassioned argument, at once poetic and logical, highly figurative and keenly unanswerable, got so firm a grip on me that he did whatever he desired. This Jew haggler seemed to me almost the youngest, most eager and most enthusiastic thing in my experience.

BUYING SLIPPERS ON SIXTH AVENUE

Certainly few of us can feel as keen a joy as falls daily to the lot of the picayune merchant of Hester Street who feels himself about to rise in the exciting world of America, and sees the old limitations of his race removed, and, behind the old barriers, a broad, fascinating field of commercial activity!

To the casual observer these push-cart scenes may seem to represent sordid poverty

ITALIAN WOMEN SELLING NEEDLEWORK

POULTRY IN GANSEVOORT MARKET

and misery. In the background, indeed, one feels the tenement-house, the sweat-shop, the poor, crowded home. When the crowd on the street disperses, most of the people will return to such homes. And yet, the eager spirit of business, incarnate in the street, is rapidly changing the condition of these homes. The poor-looking pedler you may meet in Hester Street or Sixth Avenue may live

A SIXTH AVENUE SHOPPER STOPPING TO BUY COUGH DROPS

astonishingly well. He may have—generally has, indeed—money in the bank, constantly increasing in amount. Able as he and his family are to live on very little, he is not unlikely to be really better off than you or I, who, with far higher ideals of comfort, have correspondingly heavier burdens. These proletarian-looking people are "getting on" very rapidly, already enjoy far greater comforts than they did in the old country, and spend more money for amusements.

The seething activity of these transplanted people expresses itself not only in ways which on the whole make for good, but also very strongly in the ways of evil.

But there is at least one reason which may

ONE OF MANY VENDERS OF CALIFORNIA FRUIT

be given for the extremeness of vice noticeable in certain aspects of Yiddish New York. The Jews in this country are, and feel themselves to be, freer than they have ever been before: freer in two ways. Many of them have thrown off their orthodox religion, which prescribes very carefully the manner of life, and have no religious or ethical substitute. Freedom from religion and tradition causes in many of them an atheistic and disillusioned frame of mind, breeds anarchists in theory and practice, and tends to remove the barriers from instincts which, in such a vigorous people, may lead to uncommon vice. They are also freer politically and commercially than ever before, and the ethics of some of

A WEST SIDE CANDY DEALER

them is not strong enough to bear the removal of all kinds of inherited restraints. Sudden freedom with the Jews, as with others, brings its attendant evils. Free of trammels, the enormous vitality of the Jews carries them far in the direction of vice, just as it does in the direction of business and other good and commendable things.

In these great push-cart markets we have, as I have said, all these types and tendencies represented. Follow the people from the highway and you will be introduced mainly to the sweat-shop, the tenement-house and the respectable though crowded home. Follow others—comparatively few—and they will lead you to the anarchist café, the solitary room of the Ghetto dreamer, the thief's club, or to darker and nameless resorts of untrammeled vice.

On the north of Rutgers Square, overlooking the great push-cart market, is a Ghetto artist's studio—a bare room from which the artist looks at the crowds beneath and selects his types and scenes. Nothing in itself represents the spirit of business less

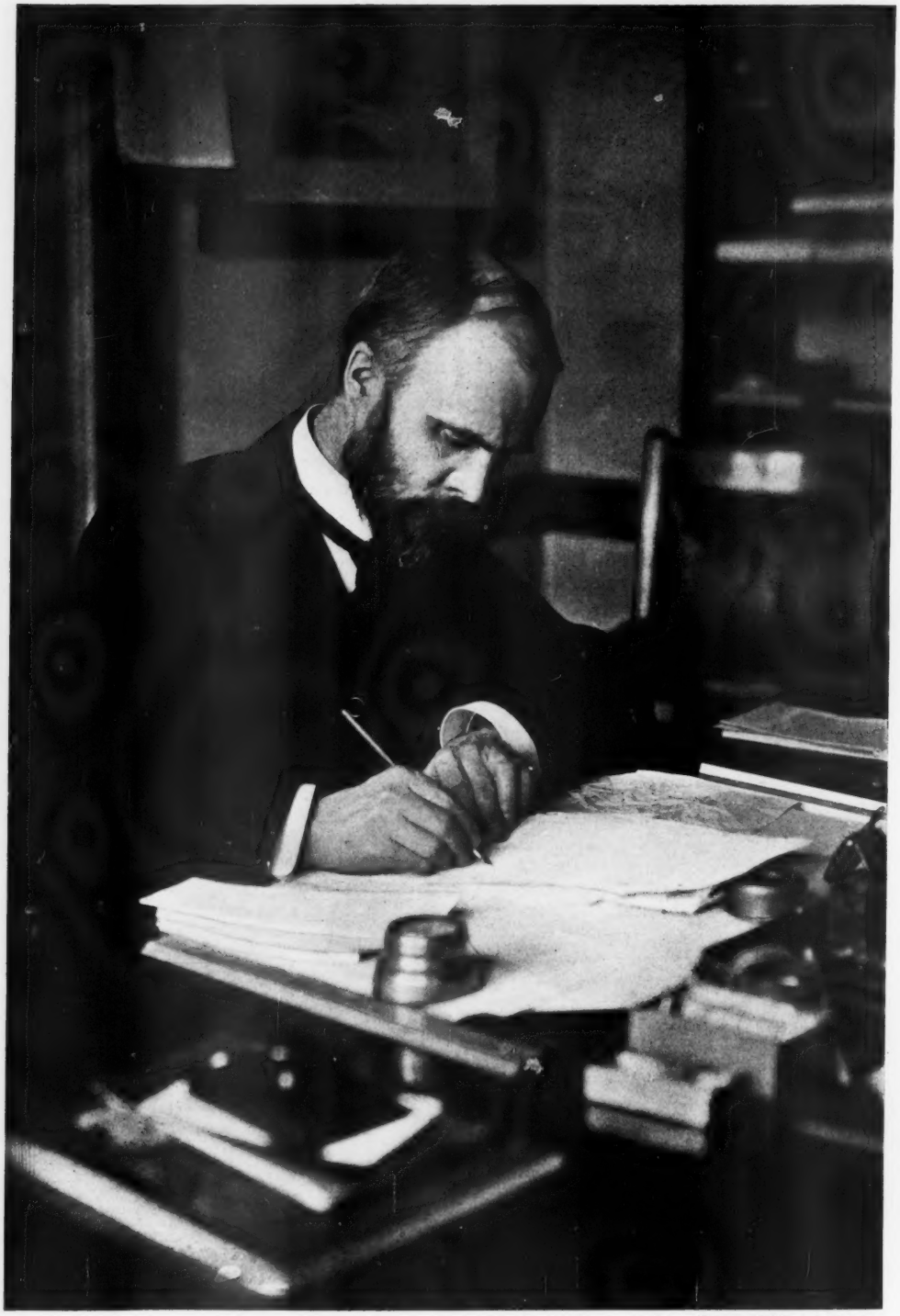
A MARKETING DAY IN THE GHETTO

than the picture on a canvas. The artist's work is contemplative: the atmosphere of repose envelops it. And yet, if you will look at this Ghetto artist's pictures, you will see in them primarily the quality I have described—an idealized activity. The people he pictures are intent on their jobs, but the business instinct which shines in their faces is not cold and calculating. It is the expression of a naïve, intense interest in life. As in the other occupations of the Ghetto Jews, there is, even in business, an element of the ideal.

Rutgers Square is, indeed, an interesting place. In the centre is a boys' open-air gymnasium where young Jews are becoming Americans in an athletic sense; on the north is the great push-cart market; in the south and east are Ghetto newspaper offices from which issue sheets which tend rapidly to educate and Americanize the newly arrived immigrant; on the south, also, are socialist and anarchist cafés which express some of the more doubtful influences at work on the Ghetto boy; near by is the Educational Alliance on the one hand and the East Side plant of the District Attorney on the other! Really, Rutgers Square is not only the most picturesque, but in many ways it is symbolic of the most significant things in our country.

FRUIT IS SOLD EVERYWHERE

THE MARKET PLACE OF A DOZEN NATIONALITIES



Photographed by A. R. Dugmore

CHIEF ENGINEER WILLIAM BARCLAY PARSONS

UNDER WHOSE DIRECTION NEW YORK IS SOLVING ONE OF THE MOST DIFFICULT TRANSPORTATION PROBLEMS IN THE WORLD

WILLIAM BARCLAY PARSONS

THE CHIEF ENGINEER OF THE GREAT SUBWAY SYSTEM IN NEW YORK CITY—HIS PERSONALITY AND METHOD OF WORK

BY

ARTHUR GOODRICH

A WELL-KNOWN "Captain of Industry," when asked some time ago to tell something of his methods of work, said after a moment's thought:

"When I squeeze lemons, what I'm after is lemon-juice. My method is to get all the juice out of each lemon before I tackle the next one."

The man who knows Mr. William Barclay Parsons well, and who, for example, lunches with him in the midst of a busy day, is not surprised if Mr. Parsons, who perhaps, in a lull in the conversation, is glancing hurriedly over the last edition of one of the daily papers, suddenly drops the sheet and looks intently into space. His gaze reaches far beyond the walls of the building. Perhaps they see some puzzling problem of a subway station at 135th Street; perhaps they see a conference of the Rapid Transit Board, and the brain back of them is busy with some terse sentence that will sum up an important plan; perhaps they are seeing an addition to the great system of rapid transit he has planned and is carrying out, or suddenly they catch a glimpse of some diplomatic way by which a great corporation may be made to help the immense scheme he is giving the best part of his life to carry out. All at once he takes a pencil from his pocket and jots down a note. "There, that's done," he says with a sigh of relief, and he is back with his friend in the restaurant again. An "infinite capacity for taking pains," concentration of effort, eternal thoroughness; these form one of the most characteristic reasons for the success of the man who has done more than any one else to make rapid transit a practical achievement in New York. In a Founder's Day address at Cornell he drove home this same idea with the words of St. Paul, "This *one* thing I do." Nothing left half baked; no plan half worked out; every lemon squeezed dry before the next one is cut—this is the way his results have been achieved.

When he entered Columbia College in the fall of 1875, after a period of preparatory education in England, he was an overgrown boy of sixteen. But he was immediately chosen class president. He was immediately and actively interested in every side of healthy college life. He captained the tug-of-war team and stroked the crew. Columbia men of that time still tell the story of how young Parsons, in an open eight-oared race on the Harlem River, pulled the Columbia crew together after an accident that had put them behind, and with indomitable pluck stroked them almost to victory against impossible odds. All this athletic training undoubtedly developed and made solid for tireless labor his big-boned, stalwart physique. After his graduation from college he entered the School of Mines in an engineering course. The subject absorbed his interest, and he took his engineering degree after making the highest general percentage in scholarship on record in the institution. He had spent his summer vacations in practical mining and railway work, and on leaving the School of Mines in 1882 he took a subordinate position in the office of the division superintendent of the Erie Railroad at Port Jervis. So quickly did he grasp the practice of his craft that in 1883 he published a little work entitled "Turnouts" that was adopted—and is still used—as a text-book in the School of Mines from which he had graduated the year before. In 1884 he wrote a practical treatise on maintenance of way, a sort of trackman's *vade mecum*, which is even now considered a standard.

From Port Jervis he was transferred to the Rochester Division, and at once he began the reconstruction of a wretched stretch of roadbed. While he was at this work, his father, from whom he probably inherited much of his calmness and self-possession, came to see him. Mr. Parsons, Sr., accompanied his son on a trip over the division, and when the

young supervisor told him about the bad condition of the track, he said frankly that he thought it remarkably smooth and solid.

"Oh, but this is the part I have rebuilt," his son explained. "We'll come to the end of it in a minute and then you'll notice the difference."

Before his father had time to reply, the train was thrown from the track by the breaking of a driving-wheel of the locomotive and landed upside down at the bottom of a fourteen-foot embankment. Father and son found themselves seated opposite each other, unhurt, on the ceiling of the car.

"There, what did I tell you?" remarked young Parsons quietly.

"Yes, son, it is rougher," his father admitted readily.

After two years of further railway construction work Mr. Parsons decided, in 1886, to go to New York, and he opened an office there as a consulting engineer with Mr. S. A. Reed, his brother-in-law. Mr. Reed had advised him to make this change because the Arcade Railroad Company planned to build a tunnel the entire length of Broadway, and there would be interesting things for engineers to watch and to do.

This was the turning point, and the decision he made has meant much to Mr. Parsons and infinitely more to the metropolis. Once his mind was interested in underground construction and in the rapid transit problem, he concentrated a large part of his time upon a careful study of it. The Arcade Railroad Company failed, and when the District Railroad Company was organized Mr. Parsons became a member of its engineering staff. The City Railroad Company replaced the District Company after it had done much hard work to no purpose, and it, in turn, went no further than Mr. Parsons's plans, which he is probably glad were never perpetuated in iron and concrete. Through all this succession of failures he was learning all about every foot of land on Manhattan Island and the foundation was being laid for his achievement. At the same time he was actively interested in practical railroad construction in many parts of the country.

In 1891, under the leadership of Mayor Hewitt, the city began to take an interest in the rapid transit idea. Already congestion was common in the rush hours, and there were demands for a practical solution of the problem. Mr. Parsons drew up an elaborate and comprehensive plan and submitted it to the first Rapid Transit Commission. He was shortly afterward appointed Deputy Chief Engineer. But no bids were received when the franchise was offered for sale, and the Commission disbanded in 1893. Then came the appointment of a new commission, and for two or three years difficulty after difficulty blocked the way of final achievement. The question of route, of expense, of objections from property holders and many others seemed impossible to solve. Mr. Parsons was now Chief Engineer to the Commission. An incident which, it is said, had much to do with his appointment is characteristic. He was put on the witness stand at one of the court hearings and the opposing lawyers put questions to him which they were certain he would be unable to answer. But he met every query immediately, and told them the exact condition of particular localities all along the route, the number and character of the sewer-pipes, the water-drains, the exact measures necessary to carry out the plan proposed, all in a tense, quiet way which proved him a thorough master of the thing he was to do.

He was only thirty-five years old when he became Engineer-in-Chief to the Commission, and many veterans of the profession said openly that his appointment was a mistake; but the Commission wanted a young man—no one but a young man could possibly complete the inevitably immense plan they were beginning—and no engineer seemed to know the ground or to have such thoroughly practical plans as Mr. Parsons. And he impressed them, as he had his college mates, with an instinctive belief in his leadership. During one of the disheartening periods after the plans for a subway up Broadway had been finally rejected, the Commission had almost given up the entire scheme as impracticable. But Mr. Parsons would not quit. He stood practically alone behind the project, and voluntarily agreed to work out an entirely new set of plans that would meet the many requirements, if the members of the Commission would keep together. The original plan of the present Elm Street route was the result of this individual work, and this was finally approved in 1898. The consolidation of the borough into the greater

city, however, had so diminished the constitutional debt-incurring margin of the city that the practical achievement was again delayed.

At about this time came the war with Spain, and Mr. Parsons helped to organize a regiment of engineers from New York. He was appointed Chief of Engineers on Governor Black's staff with a rank of Brigadier General, and was placed in command of the State Camp at Peekskill, where the regiment was ordered for muster and instruction. Following this experience he was appointed Engineer-in-Chief of the Hankow-Canton Railroad. Hankow is the Chicago of the Chinese Empire, Canton its New York, and the crudest methods of transportation connected the two cities. With a few Americans and a motley crowd of Chinese Mr. Parsons tramped on foot through the closed province of Hu-nan, half again as large as New York State and containing 22,000,000 people. No foreigner had ever gone through it before. But, carefully untwisting miles of bureaucratic red tape, pushing ahead with indomitable will, making friends and admirers of men who were prepared to distrust and hate him, Mr. Parsons completed a preliminary survey, which many had prophesied could never be accomplished, in remarkably short time. As a member of the expedition described the task, "he did it on tact and absolute fairness of treatment to officials and peasantry alike. Prepared to fight, he never made the least show of willingness to do so, and we got through without friction, though often in much danger. Rapid transit requires generalship, of course, but it's the generalship of field maneuvers when compared with that thousand-mile march in a hostile country from Hankow to the sea. Sherman's march was nothing to it."

So successful was the result of Mr. Parsons's work in China that he not only received what is said to have been the largest fee ever paid for a preliminary railway survey, but he is now the president of the railroad company and the line is already well under way. Two gaily painted engines, decorated with Chinese hieroglyphics, now helping in the construction of the road, used to pull crowded trains of elevated cars in New York before the installation of electricity. Thus Mr. Parsons washes the left hand of his work in Asia with the right hand of his work in America.

When he arrived in New York the Rapid Transit Commission was ready for him. At last the great scheme at which he had been working for years was to begin. How badly it was needed only people familiar with New York can know. A comparison, which Mr. Parsons discovered recently, that the surface and elevated railways of New York City carry annually more passengers than all the steam railroads in both North and South America, including the suburban traffic of all the great cities, will give some idea of the great system which must be worked out to handle the daily passenger traffic of the city. These present roads carry more than a billion paying passengers yearly, to which may be added 250,000,000 for transfers. The traffic is increasing at the rate of six or seven per cent. a year. The subway cannot carry more than 250,000,000. Allowing, therefore, only three years to build a subway, it will then merely meet the natural growth in population.

This is the problem Mr. Parsons has been grappling with ever since he returned from China, every few months startling the people with added plans to meet increased congestion. Subways and tunnels and elevated roads have followed each other on paper in quick succession, and they will rapidly follow in steel and iron and concrete. A good example of the way in which Mr. Parsons plans for fixtures is his solution of the Brooklyn Bridge problem. The Board of Advising Engineers suggested an elevated railroad connecting the Brooklyn Bridge with the new East River Bridge. Such a plan might relieve congestion temporarily, but it would not increase carrying capacity, and the old bridge is already overloaded. Mr. Parsons's plan is to take the trolley tracks off the bridge and run the electric cars across on the cable tracks, leaving the roadway entirely to vehicles. All the other trolley lines he would send across the East River Bridge, thence across town and underground by a tunnel, and back to Brooklyn through the proposed Maiden Lane tunnel. Such a plan is made for the future and for permanency.

It has been said that Mr. Parsons is as thorough as a machine—that he concentrates to get one thing done at a time. If we follow him once through his daily routine the large facts of the man's character are as evident as his already great achievement. His kindly

eyes, his firm and heavy, almost threatening, jaw, his quiet but decisive voice suggest contrasts of character at the start. Here is a man whose rapid transit plans, the carrying out of which he will personally direct, already involve an expenditure of $100,000,000, who is managing work today that is costing from $1,000,000 to $1,500,000 a month. He is, as some one has said, "the genius of the hole in the ground." When his estimates of the time and money necessary for the present subway were published many engineers ridiculed them. "Impossible" they said. "Absolutely impossible." But it has been done or will have been done in a few months. Mr. Parsons has until next March to complete the work. Most of the line will be in operation for the Christmas shopping. It was the same way in China. He made a schedule for the time needed for his survey. Every one laughed at his confidence, but he finished the task two days ahead of schedule.

If you sit in Mr. Parsons's office and look out of the big windows over the pulsing island city, the rivers on either side, the crowded narrow streets, the towering buildings, you will suddenly feel the immense sweep of this man's work, which is knitting together the parts of the greater city by traffic paths underground and elevated above it, by tunnels under rivers, by bridges over them—the most remarkable system of rapid transit plans ever proposed. He must have the imagination of creative genius. Go out through his offices and you will find room after room of hard-working engineers and draughtsmen, organized carefully and having splendid *esprit de corps*. These men work out the plans he creates. He does not allow himself to be swallowed up in detail, but often as he looks over the detailed plans he will put his finger upon many little flaws that have passed by the men who have made them. He checks the work carefully. The men who work with him all believe in him thoroughly both as engineer and man. A man who can command such a force of skilled employees must have remarkable executive ability.

"In all the three years of the work," said a member of his staff, speaking of Mr. Parsons, "there has never been the slightest friction or jar in the entire force. When lately, on his return from a short trip abroad, he found that the Civil Service Commission had amended its rules so as to require an additional examination for every advance of $150 in salary even in the same grade, he at once went before the Commission and the Board and the action was recalled. You can imagine how ready his force is to coöperate with a man of that kind."

These engineers of his, however, are his easiest executive task. Follow him up and down the subway tunnel and realize that this man is personally directing the work of the contractor and his 10,000 men. Follow him to a meeting of the Rapid Transit Commission and you will find that he quietly and tactfully meets every objection, answers every question put to him about the work. Without doing all the work he yet knows all the work that is done. Go from there to a meeting with New York Central Railroad officials, and watch him prove to them the necessity of their connecting with the street lines, and from there go with him to a conference with the Brooklyn Rapid Transit Company over his plans for relieving the crush on Brooklyn Bridge. There has never been any considerable friction in any part of this gigantic work. Men come in angry and go away with a smile, though not a thing has been done for them. Such a man is a born general and diplomat.

A single incident told by a man who was associated with him at the time will show his ability to handle men. "A realty company was formed to buy private property under which the road would have to run and as far as possible where stations were to be built. They went to buy some property that they needed for a station. But the proprietor of a large department store asked them to hold off, as he was going to erect a big building. He would give the road every accommodation, he said. The realty company held off, and when the Commission wanted to arrange for a station they found that this man had bought up the property, and he made such hard terms with them that they almost decided to move the station. Mr. Parsons, looking over the ground, saw that it would help the city if the street above were to follow the course of the subway underneath. He proposed it to the Board of Street Opening, the property was condemned, the subway got its station at a proper valuation, and the city gets a fine open place that will greatly relieve the congestion of surface traffic."

Mr. Parsons saw the end of the puzzle he was to solve, and then, setting his heavy jaw and holding on with grim tenacity, he worked it out. That is what he will always do. It was what he did in China. When he reached Hankow for his famous survey he found none of the party which was to accompany him through the closed province. It was Tuesday. He was to start on Friday. One of the interpreters told him on Wednesday that the one hundred men he had been promised would scarcely be ready on Friday. Perhaps by the Wednesday or Friday of the next week they might start. Mr. Parsons sent word to the officials that he was going to start on Friday. Messages went back and forth, and finally on Thursday evening Mr. Parsons made it clearly understood that he would start Friday if he started alone. When he awoke the next morning his motley company of one hundred were awaiting him, and off they went, on time. At the first town they reached they were received pleasantly, and through interpreters the officials made it known to Mr. Parsons that he was to go down the course of a certain river and then in a southwesterly direction, and so on. Mr. Parsons thanked them kindly and told them that he was going straight across the hills. Word came back that he had better not do so. "He would find nothing but mountains and rivers," suggested the equivocal message, meaning difficulties, obstacles. Mr. Parsons merely affirmed that he would take that course, nevertheless. They were about to reiterate their suggestion of "mountains and rivers," when a Chinaman who had accompanied the party from Hankow broke in, shaking his head. "No good to talk to this man of 'mountains and rivers.' Talk to him only about plains."

And this quiet, unassuming bravery was shown only a year or two ago when in a railway accident he was thrown the entire length of the car and his head and face were dangerously cut. When they got him out, after a quarter of an hour or so, he told them to go ahead with the other people first; he was all right. And he held on with iron nerve until a fresh surgeon appeared.

In his little spare time many things occupy his mind. A man who did some private work for him remarked, "One day it was a railroad at Pittsburg, the next the Chinese railroad, the next some work for an encyclopedia." He is gratuitously helping London engineers with their rapid transit problem. He has done a good deal of writing and has made a number of important public addresses. A man who knew him well said that Mr. Parsons would never overwork or burden himself. His sense of humor would save him. There was abundant evidence of this quiet humor in a remark of his the other day: "Did you ever write a book? No? Well, don't. It's too expensive a luxury of labor."

He is a very genuine man and a genuinely kindly man. Not long ago he went to Europe on some matters of business and was received with considerable ceremony by many leaders of English progress. He had a dozen or more large plans to carry out, and yet, when an employee of his who went abroad for a rest some weeks after Mr. Parsons had gone, arrived at a London hotel six hours later than the time which had been scheduled, the man was astonished to find awaiting him an anxious wire from Mr. Parsons inquiring for his safe arrival. And the same thing happened later in Paris. He is a man who naturally likes people and enjoys showing that he likes them.

His home means more to him than his clubs, although he is a member of a number of the best ones. He is the youngest trustee of Columbia College and a vestryman of old Trinity Church, New York. He is fond of yachting, but he takes his recreation chiefly in varying work with other work.

A man with an imagination that plans great things, with thoroughness doing one thing at a time and that one thing well; with executive power and a genius for leading men; with the skill and tact of a trained diplomat, and with an unalterable determination that gets great plans, thoroughly handled by thousands of men under his direction, done on time; and a kindly man with a genial sense of humor; modest, as one man put it, "because he doesn't know any better"; not without faults, but seeming to lack any that might interfere with his highest efficiency. Such a man is William Barclay Parsons. The fact that he and men like him are doing the most important public service should brace up the weak backs of those who fear for the republic.

MAKING LOW FREIGHT RATES TO INCREASE BUSINESS

THE WORK OF A GENERAL FREIGHT DEPARTMENT—HOW THE RAILROADS COMBINE TO CLASSIFY FREIGHT AND HOW THE AGENTS THEN ESTABLISH RATES IN COMPETITION

BY

M. C. MILLER

A RAILROAD official testified before a Congressional commission some years ago in reply to a question of Roscoe Conkling regarding freight rates:

"Yes, we charge as much as the traffic will bear; it wouldn't be business if we didn't. But we charge a rate to make the traffic grow. We name the maximum rate on what we think is the potential maximum of traffic."

This, after all, is the secret of low American freight charges and of American railroad success. Rates have declined, but the increase in business that has followed reductions has maintained and even swelled the profits of the railroads. This is pretty widely known. The actual method of making the rates—the working out, in brief, of the greatest single business in the world—is still, popularly speaking, a matter of mystery. The public, as a rule, do not understand how the thing is done.

Naturally the broadest phases of the business are managed through an understanding that embraces all the railroads in the country—a gigantic combination for mutual benefit and assistance. By common consent among the railroads the United States has been divided into three great sections: one east of the Mississippi and north of the Ohio and Potomac rivers, one south of the Ohio and Potomac, and one west of the Mississippi. Long ago a committee of freight traffic officials in each of the sections classified freight in six or more graded classes. Now these classes are fairly permanently fixed and well understood, but each committee continues in existence to pass on exhaustive pleas from shippers to drop certain articles in lower classes and thus lower rates, and to classify articles hitherto unprovided for. Governed by the classifications, each railroad charges whatever it thinks best to attract shippers and yet make a profit on every hundred pounds it carries. After fixing a rate, the railroad is compelled by the Interstate Commerce Law, when it does interstate business, to publish it. But, under competition, that rate is lowered according to exigencies, and even under ordinary circumstances a shipper sending goods by the carload can secure a better rate than if he sent the goods in smaller quantities. Carload lots are in reality classed lower than small lots. Moreover in certain territories for specific reasons a railroad may apply a rating called technically an "exception"—when goods are put into a higher or lower class than normally. Under this general system the freight of the country is assessed.

It would all be simple enough if goods always traveled by a single railroad. The fact that they travel sometimes over five or six is what makes a General Freight Agent's office a tremendous chessboard, with intricate computation always going on and with constant attention to a thousand details.

Arrangements must first be made by any railroad with the other roads with which it shares business. The matter is settled usually by correspondence and conferences. The usual arrangement is one in which each road over which the freight is carried—say from Chicago to Boston—receives a percentage of the total charge, based on the number of miles each carries it. The person who pays the freight usually decides over which roads it will travel, the railroad which takes it makes the rate, and then all the railroads taking part in transporting it share in the payment according to their mileage, unless there is a combination of local rates.

The matter, however, is not always so simple. Sometimes a railroad possesses such a business advantage that it can obtain from the other roads what is called a "constructive" mileage—that is, a railroad 300 miles long arbitrarily declares itself 500 miles long, and receives a percentage according to the longer distance. Further, such a state of affairs exists that if certain railroads running out of New York State send freight directly south instead of via some Ohio River gateway they do not receive the regular mileage percentage, but what is called a "specific"—a definite, unvarying sum on each class of freight. This is the profitable arrangement their strategic position has enabled them to enforce. Thus any increase in the through rate is gained, not by the road on which the freight starts, but by the other roads, and any decrease also falls on them alone. As a rule, all special charges in the way of terminal expenses are deducted before the percentage distribution is made. After the railroads have agreed to them, the percentages usually remain in force for a considerable time, and the regular class-rate tariffs are effective nearly as long. Each freight agent's office contains files of all rates and percentages to which his road is a party, so that a shipper can be readily told how much it will cost to send goods anywhere, and the freight agent naming the charge knows by a glance at his list how much of the whole his road will receive and how much will go to each of the others. Rates are made by the road that is to receive the goods and start them on their journey. The harmonious action, also, of the different railroads in such matters, for example, as defining the limits within which free lighterage delivery is made in New York harbor, helps to keep working smoothly a business that is peculiarly susceptible to disconcerting snarls.

Owing to ever-changing business conditions lower rates than the regular class-rate tariff necessarily have to be quoted on various articles. These are known as "commodity" rates—placed on special commodities. Applications for such rates are numerous and constant, and each has to be accorded careful consideration in order to deal fairly by the applicant and at the same time realize for the carrier as much revenue as the traffic will legitimately bear. The necessity for according all patrons consistent treatment occasionally precludes granting an application for reduced rates or some other concession that, considered alone, could be properly made, since constant discretion has to be exercised to guard against creating precedents that, later on, might be embarrassing when quoted by another as a basis for a similar request.

Since the only incentive to move property is a prospective profit, transportation rates must be low enough to admit movement. If the rate is too high, business will stop. Moreover, the competition of markets must be recognized. For instance, potatoes, as every one knows, are raised in various places, and there is always more or less demand for them in the large cities. If they command a good price at New York, a shipper in eastern Maine will endeavor to market them there rather than in Boston or some other New England point where the supply may at the time exceed the demand; but if the freight rate is too high he will be unable to ship them there, and the potatoes will be forwarded to New York from some other section where the rates are more favorable, thus obliging the shipper in Maine either to hold his stock an indefinite time, for a possible advance in the market, or sell at the lower price prevailing in Boston. Again, lime is manufactured in New England and in Ohio, as well as other places. A consumer at Syracuse or Rochester, N. Y., will buy at the point enjoying the most favorable freight rate, assuming the price of lime to be the same at either shipping point, free on board cars. As against lime that can be sent to Boston or New York City by water, say from Maine, it is necessary for manufacturers in Vermont, Massachusetts or Connecticut to have reasonable all-rail rates, otherwise they would be unable to compete; and, if unable to dispose of their output satisfactorily elsewhere, a cessation of production would ensue, causing a loss of revenue to the carriers as well as a larger loss to the manufacturers. At Birmingham, Ala., Chicago, Ills., and Pittsburg, Pa., iron and its products are manufactured, while Louisville, Ky., and Cincinnati, Ohio, are common markets, so that any reduction in the freight rate from Pittsburg would compel a corresponding reduction from Birmingham and Chicago, and many similar examples could be cited. Unlike the passen-

ger business, it is not the question of a single fare, but of providing rates to cover all kinds of property, ranging from pianos or silk to iron ore or sand; so that dealing with all these problems is much more of a Chinese puzzle than the general public has any idea of. All these complicated problems the General Freight Agent's office must work out.

Of course, there is no one location for a manufacturer that will enable him to reach all points of consumption to the disadvantage of others, although it is the endeavor of the Traffic Department of each road to let all industries on their lines reach as much territory as possible at favorable rates, since their interests are mutual. It has been shown how dependent manufacturing and other interests are upon the railroads, while the railroads are similarly dependent upon productive industries.

At times, conditions may warrant naming rather low rates, as, for instance, on iron ore, when coal cars of great capacity can be utilized that would otherwise be returning empty. On the other hand, the special fast movement required for the transportation of milk, berries, fruit or vegetables, in refrigerator or other cars, justifies a higher schedule of rates than is charged for ordinary service. The movement of freight over the road is controlled by the Transportation Department; but, as the results of the service are reported by patrons to the Traffic Department, the officer in charge of the latter frequently confers with the Superintendent, recommending such changes as seem desirable, both to retain old business and to secure as much additional traffic as possible.

Requests are more or less frequent for the privilege of stopping a car in transit for partial unloading, or of stopping a partly loaded car to finish loading, or of reconsigning or diverting cars already in transit. Occasionally, through error or oversight, a shipment may be misrouted and require an adjustment of rate and divisions en route, if possible, to avoid overcharging the consignee at destination. When it is impossible to do this, the apparent overcharge has to be dealt with in the shape of a claim. The adjustment of freight claims may or may not be under the immediate supervision of the General Freight Agent, but vouchers drawn in settlement are examined and approved by him before payment, thus making him generally responsible for such disbursements.

If an original bill of lading becomes lost or destroyed, a satisfactory bond of indemnity has to be prepared before a local agent will deliver the property. Then, if some one later makes a demand for the goods, exhibiting the lost bill of lading, the railroad is protected against loss, if it be proved that it delivered the freight to persons who had no right to it.

In the conduct of so large a business, it sometimes happens that, even with the best of care, property is delayed in transit by reason of erroneous loading at initial or some transfer station, or fails to arrive for some other reason. In such cases the office staff makes all speed to locate it by means of a tracer, telegraphing if the case is sufficiently urgent.

A curious case of lost freight occurred a few years ago. Two carloads of grain were forwarded to a corporation in one of our largest cities and placed, in due course, with numerous others, on a storage track in the suburbs, waiting for the consignee to order them placed where they were to be unloaded. The freight agent in due course received the usual order, which called for the entire quantity in one car, the arrival notice having been so made out, because the way-bill from the shipping point showed the weight and charges for both cars in one item, just as if the consignment were actually all in one car. The switching crew, having an order for but one car, did not take the other, and, upon delivery, the representative of the consignee evidently thought he had the total quantity, as he signed the usual receipt for it without question. A year later, an observing employee, having seen the other car at various times on a back track, opened the door and reported to the agent what it contained. Inquiry of the Car Accountant then revealed the last movement the car had made under load, and, from the date of that movement, the agent at the forwarding station furnished the billing reference that cleared the case up. As the consignee was found to have failed in the meantime, and a receiver was winding up the business, the property was sold by the railroad to the best advantage and the proceeds turned over to the receiver, thus releasing the car after probably one of the longest detentions, under load, on record.

The successful General Freight Agent is a

man who possesses a good address, has executive ability, is thoroughly conversant with all the natural resources and manufacturing industries located on the line he represents, is a close observer of general business conditions and also knows what other roads in his territory are doing for patrons, in order to deal with the numerous problems continually being presented and to outline the policy for his staff to pursue. When he sends his agents out to solicit business they must know just what terms they can offer, and be prepared to answer all kinds of inquiries, such as time in transit, delivery facilities, and so on.

The annual reports of United States railroads show that the receipts from freight transportation are in almost every instance in excess of passenger traffic earnings; and thus it can very readily be seen that in the conduct of so vast a business, involving so many interests, the railroads require the services of the brightest and ablest men they can secure. The remark was once made that "the contempt of the Operating Department for the Traffic Department is only exceeded by the contempt of the Legal Department for both," but there should be no such feeling. The importance of the Traffic Department should be fully realized and appreciated. As the transportation of passengers and freight yields nearly all the income a railroad receives, success and continued solvency depend in no small measure upon the results achieved by the officers in charge of that department and their subordinates.

THE BOOKS READ BY THE CHILDREN OF THE GHETTO

THE FONDNESS OF GIRLS FOR MOURNFUL STORIES—AMBITIOUS YOUNG PEOPLE WHO PREPARE THEMSELVES FOR COLLEGE—STORIES READ ALOUD BY CHILDREN TO THEIR PARENTS

BY

GRACE LOUISE PHILLIPS

FORMERLY LIBRARIAN AT THE UNIVERSITY SETTLEMENT LIBRARY IN NEW YORK CITY

IN the heart of New York's East Side is the Ghetto, where they estimate 4,000 inhabitants to each square block—the densest population in the world. In the heart of the Ghetto is a public library connected with a social settlement. All day it is filled with eager, dark-eyed children, chiefly Jews, busily reading or rummaging; and older people haunt it in the evening. The result is, that well-meaning people who enter the East Side to do volunteer educational work in the Ghetto, sometimes find that their earnest pupils know as much in history and literature as their teachers.

The reading of the younger children naturally runs to fairy tales, but the children do not monopolize such books. Little Yetta returns with a story to say that she read it to her father and mother, in their tenement kitchen, translating into Yiddish as she went along. And very probably Yetta's small or large brother has borrowed a fairy tale, too.

In general, however, the taste of the boys is healthier than that of the girls. Two girls will come into the library and one will say, "I want a sad book, please," and the other will say, "And I want a very sad book, too," and their faces will show the mournful delight they are anticipating in being "harrowed." The girls, too, often ask for the "Elsie" books, but, contrary to the reports from some localities, they do not leave the library because these books are not forthcoming. Given one by Meade, or Alcott, or Richards, they seldom repeat the request for the righteous but unnatural Elsie and her progeny.

The librarian always looks at the book a child desires to draw—the children make their own selections from open shelves—and if the book seems unsuitable another is recommended. Often the children ask the librarian in the first place to choose for them. Thus there is guidance in right directions.

When the boys want the Alger books, they have never yet left in disgust because Alger was not on the shelves. An introduction to Trowbridge, Otis, Twain or Tomlinson would usually suffice. One boy did threaten to leave because Henty could not write fast enough for him, but he was persuaded to try Ivanhoe and the crisis was safely passed. One boy asked for "Strawberry Finn"; later, this request was told to the genial author of "Huckleberry" and it pleased him so much that he sent an entire set of his works to this same library. Stories from American history by Stratemeyer, Otis, Tomlinson, and several others are favorites. Indian stories, too, are eagerly read, and from Ellis to Cooper is found to be only a step.

Some of the more typically East Side boys want detective stories, and some even stipulate that there must be a murder on the first page or the book is "no good." Sometimes boys come into the reading-room with their own special brand of "literature." They are always invited in to look over the shelves for more desirable books, and they are very easily led to one of Doyle's or Greene's, and if they cannot be induced to join the library, these books are kept for them to read whenever they come in, which is usually every evening when once they start. One boy came to me and volunteered the information that he "wa'n't readin' the other kind no more."

"Have youse anything about pirates?" is sometimes asked, but the request for the life of Lincoln, or Longfellow's poems, comes much more often.

Literature, American history and biography are the three classes most in demand. To these Jewish children poetry especially appeals. They read it understandingly. Longfellow, Whittier, Bryant and the Carys are the favorites. "Thanatopsis" is often asked for and copied. One little boy of ten, however, a daily visitor to the library, writes his own poetry. Now and then he comes hurrying in "in a fine frenzy," his eyes sparkling and his cheeks burning, and asks for a piece of paper to write his "poem" on. Within ten minutes he presents the library with the finished production.

Lamb's Tales from Shakspere are in great demand, though they are sometimes disguised under the title of "The Story of Shakspere and the Lamb."

The fondness these children show for American history is good evidence that, though aliens by birth, they are good Americans at heart. They like especially stories of New York City, and many of them belong to the City History Club. The lives of great men seem to fascinate them, with Lincoln as their favorite. They feel a personal interest and pride in his achievements against such tremendous odds.

Most ludicrous mistakes are made by the younger children when they come to exchange books for their older brothers and sisters—a common habit. "My brother wants 'The Three Mosquitoes' by 'Dummas,' said one little fellow on one occasion, while on others "Cæsar Almighty" ("Seats of the Mighty"), "Uncle Tom's Cabbage," "Enoch's Garden" and "Somebody's Plural Wives" ("Plutarch's Lives") have been demanded. One boy recently asked for Shakspere's "Omelette."

"Uncle Tom's Cabin" is very popular. It is translated into Hebrew and into the Yiddish dialect and is read and loved by hundreds.

One day a little girl with a large book and a troubled face came into the library and said to the person in charge, "Jaky is sick and I have brang his book in." In answer to the usual query, she went on: "No, it ain't catching. He has much pain, and we think he ate something that didn't become him."

The older readers are mainly young men and women, from eighteen to twenty-five years old, who are either attending high school, the City College, or some other educational institution, or are working. Of the latter class, at least eight out of ten either attend evening school or are studying by themselves for the Regents' examination. One youth who for a long time worked and read in the library is now a student at Harvard. To these readers, the great objection that librarians are raising against the circulation of so much fiction does not apply. Their first choice is quite likely to be non-fiction in the first place, and in the second place the fiction which they do read is the kind which the modern young person generally leaves unnoticed. The inherent Jewish trait of "getting their money's worth," getting value received for everything, is applied to their reading. The little time they have to spend in reading for recreation is too valuable to be wasted on books not worth while. This may be one reason for

the high standard of fiction which they demand, but there is more than this commercial spirit which governs their selection. They have a natural literary instinct which leads them to choose well.

Dickens is the most widely read writer of fiction on the East Side. Thackeray, Scott, Tolstoi, Zangwill, Kingsley, Dumas, George Eliot and Hugo are all great favorites. New books are asked for, to be sure, and the various critical magazines are consulted for reviews and notices of these books, but among the books reserved are more often to be found "Ivanhoe," "Daniel Deronda" and "Vanity Fair" than "The Master Christian," "Lazarre" or "Dorothy Vernon."

Oddly, certain stories are enjoyed because of their beautiful descriptions of nature and their out-of-door tone. The breathing space and unlimited view which the readers get from "The Virginian," and from some of Hamlin Garland's and Bret Harte's western stories, are a relief to their cramped lungs and narrow sight, and "Audrey" has been returned many times with the remark that the word-pictures of the Virginia country constituted its chief charm.

Although the tastes of these readers incline toward the dramatic and tragic, still the sense of humor is not lacking. Stockton's stories are widely read, and those of Mark Twain, Jerome K. Jerome and John Kendrick Bangs are seldom on the shelves.

Now and then a young girl demands a book with "lots of conversation and some love," or "a book where the girl goes to parties and wears pretty clothes." But poetry and the drama, essays and literature in general come first. The librarian consults with teachers in the neighborhood, and sets forth on a bulletin board a list of books bearing on subjects under study in various classes. On such an occasion, too, as a great man's anniversary, the bulletin recommends appropriate reading. Almost every child who enters reads the bulletin carefully before going to the shelves, while there is often much quiet discussion as to choice of books.

Among the older readers there is in almost every case a *purpose* underlying the reading. And for indomitable perseverance, continued and earnest effort, commend me to these young people of the East Side. They are preparing themselves for the battle of life, and, if we can judge by the books they read, they are imbibing from books the culture and refinement so hopelessly lacking in their narrow and sordid surroundings.

"J. P. M."

PERSONAL REMINISCENCES OF THE AUTHOR OF "A JOURNEY TO NATURE," ETC.

BY

EDGAR MAYHEW BACON

[A man who gives himself to newspaper work till middle life seldom—in fact, one may say never—carries out the plans of doing the larger and more sustained literary work that had formed a part of his life's plan. The most remarkable exception to the almost universal rule that journalism swallows its workers was the late Mr. Andrew C. Wheeler. He lived out and worked out two journalistic careers. Then, when he had almost reached sixty—a time of life when journalism has worn most of its writers out—he disappeared, as far as the reading world knew. He moved to his country home in Rockland County, New York, and retired to do his own work in his own way; and, although he had already reached the age when many men become old, he began a new career. He took a new name. He became "J. P. M." The reading public accepted him as a new writer. He wrote nothing that suggested the work of his former periods—his periods of journalistic writing. He produced "A Journey to Nature," "The Building of a Country Home" and two novels, "Tangled Up in Beulah Land" and "The Conquering of Kate."

The following reminiscences of this remarkable man are written by his friend, Mr. Edgar Mayhew Bacon.]

HIS breaking away from the old environment was very gradual—it could not possibly have been otherwise. It was not so much a voluntary letting go, as the relaxing of outgrown tendrils on the

one side and the development of strong roots upon the other. It was interesting to observe in one who had already accomplished nearly threescore of the allotted years of man's life, a slow but complete change of base. One very important question involved in this change will be appreciated by every man of letters who lives by his pen. To give up his journalistic work meant to give up his emoluments with his market; in other words, to commence life afresh. For possibly the first time in his life this man must become acquainted with the keen disappointment and self-distrust that are so frequently enclosed with rejected manuscripts. The readjustment could not be accomplished in a day or a year. That it was accomplished at all seems little short of the miraculous.

At one time he wrote, "When I leave my own wilderness I leave all that is new and plunge into all that is stale, flat and unprofitable." Then, after a winter season in the city, came this protest: "I have been so harried with cross purposes that I don't know what I shall do. I have just signed a contract for a play which must be done by September. . . . So I suppose the middle of April will see us back on the ranch—I don't know, all sorts of things turn up, but if I can manage to get the time out of other work to do the play this summer, I hope to have some leisure ever after." Then he adds, "This isn't a chirp, as you demanded, but a kind of gasp."

Then came a season of resolute isolation, the city forsworn, and in the spring a lusting after the flesh pots, expressed in very vigorous English:

> "Hibernation is played out. I have chewed more or less on my own vitals this winter. Solitude may make a man a philosopher, but it puts too high a premium on the grave. There is such a thing as erecting meditations into a mausoleum. I may go out this spring better equipped with reflections, but they are not negotiable—I have got to that intellectual point where I want to hit somebody with a pen, and not a fountain pen either. I have piled up a lot of 'copy' this winter, and I am beginning to suspect that I have piled it up where moths do not corrupt and thieves break not through and steal—that is to say, the thieves do not want it. However, the sap is running in the maple trees—why not in the hibernating scribbler?"

In October, the autumnal splendor of the woods and fields about his home inspired this passage: "We are buried in old gold here now. Never was the opulence of October so inexpressibly yellow. The very air is esoteric with the mellow 'beyond' of life." Then there came a contented chuckle from behind the snowdrifts: "We are sealed up here by the storm, as you can imagine, but the Lord has been good to us, and we are doing the 'rug-in-a-bug' business placidly. You shall think of me in lines of poesy only:

> "Beneath dread winter's weary waste of snow
> The sweet, nutritious turnip deigns to grow."

When the drifts had melted he noted "Some signs of spring in the way of bluebirds, influenza and skunk cabbage."

In his very last letter to me, dictated in the room where he passed the last hours of his life, is the plaint—almost the only one melancholy note in all the many pages I received from him, "The weather here is insufferably gray and moody, and from my prison window the old world looks outworn."

His inability to tell a story or explain a situation or to state even an abstract proposition without violent gesticulation was well known to his friends. Frequently he has commenced to outline the plot of a story or play, hatched in a moment, born of some passing event, or suggested by a picture or a passage in a book, and before long has been going from scene to scene, from situation to situation, working up to a dramatic climax, during the whole recital hardly at rest for a moment. Every movement must be illustrated by some concurrent gesture on the part of the narrator.

In speaking of his withdrawal from the scenes of his former activity and his retirement to the quiet of a country home, I would not be understood as suggesting that he became in the slightest degree morose or unsocial. His real interest in men seemed to strengthen and become deeper, and he was more apt to look for what was finest and appreciate what was sweetest in character and thought. Almost his latest utterance was this, "It must be an awfully lonesome world to those men who outgrow everybody in it, and I honestly think that when a man reaches that distressing point of development he ought to be looking for a leasehold in some other world."

Though introspective to a degree, in common with most analytic minds, he was not

morbid, nor could he tolerate morbidness in others, yet he learned to cherish a very tender sympathy for "sweet and candid souls" who were not entirely free from the sensitiveness of invalidism. In my copy of "Amiel's Journal" I find this, in his handwriting: "Here was a great soul lowering buckets into his own consciousness all his life. They came up brimming and sparkling, but the man never got away from the winch. You will hear its little squeak occasionally. Sometimes his faith gets tired of trying to lift itself in this way and he wants to lie down and rest himself."

He was sedulous, even to the end of his life, to conceal his assumption of a new pen name, and cared nothing for the personal applause that must have accompanied the fame won in a new field of work at an age when most men are content to wear the laurels already achieved. The reception of "J. P. M." by the public was almost as much a surprise to the author of "A Journey to Nature" as the appearance of its first chapters was to the readers of the New York *Evening Post*, in which it first appeared. These letters, which were gathered into this book, were the outgrowth of a departure already accomplished. No one can read them without being convinced that they are the expression of a soul that had found itself, the result of mature convictions and deep reflection. He came with the refreshing tonic of something to say.

He was an artist, not a naturalist, and his study of nature was comprehensive rather than minute. To his eye the succession of the seasons was a fascinating pageant; to his thought the everchanging, overwelling tide of nature an inspiration. Touching the delicate fringes of a gentian with caressing fingers, solacing his heart with the serenity of summer woods, or exulting in the blazonry of a sunset, I know that his delight was more in the ideal suggestion than in the thing itself.

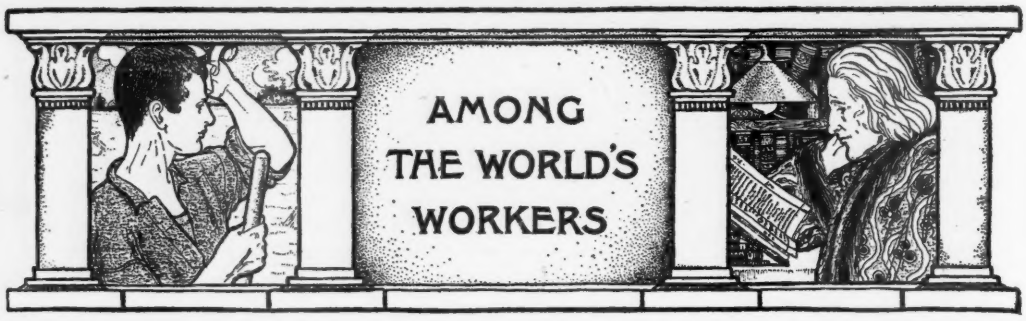
There was no phase of the question of man's relations with the unseen world that did not arouse in him instant attention and earnest interest. It would be impossible to make even the briefest analysis of his personality and neglect to notice the strong and increasing tendency of his mind to speculate upon religious and theological subjects, and it was the dream of his later years—unhappily unrealized—to write a great religious story. This idea took definite shape several years ago as we worked jointly upon a history, not yet completed, of the great, romantic pioneer work of the "saddle-bag" Methodist preachers in the South and West during the first half of the nineteenth century. He looked upon the world-struggle between rationalism and evangelicalism as the most important of the great questions that engage the attention of the world.

"The fight is on," he writes, "between what for want of a better name can be called evangelicalism on one side and a pietistic rationalism on the other. The gravity of this fight to my eye is in the fact that all the orthodox traditions are shifting their ground under a world pressure. . . . The vital point of departure (and this is the gravamen of the whole business) is in the lapse from a belief in the supernatural element in Christianity . . . The whole efficacy of the M. E. Church rested on the witness of the spirit—a miracle that reached down from the day of Pentecost to our revivals in the backwoods."

Again he wrote:

"By the way, the incessant hubbub that is making over Markham's 'Man With the Hoe' suggest a gorgeous opportunity to write—'The Man With the Sulky Plow.' Markham's poem disparages the earthworker. The poet has an undisguised contempt for the close contact with the soil, and he makes this mistake of seeing in the peasant of Millet a man degraded by primitive labor, whereas the man is degraded by tyranny, oppression, human wrongs and social helplessness. America has answered all that problem. The man with the hoe in this country has done more than any other to make it. Every State has given us a Cincinnatus who had blisters on his hands, but died with garlands on his brow. Winslow Homer, some years ago, painted a picture which he called 'The American Farmer.' It was a superb New England man standing erect, looking into Heaven, with his hand on the plow. In him were all possibilities. His feet were in the furrow, but his eyes were on manifest destiny. I wish you could see that picture."

I might go on indefinitely, quoting here and there from the good, friendly letters, seeing through them, and imagining that I could possibly make others see the many-sided man whose large thoughts leaped into words—whose words were delivered always shoulder-straight; but at the most I can give only an inadequate idea of him.



THE FASTEST STEAMSHIP EVER BUILT

GREAT, slow boats are all right, but for our motto you may write this, 'A broken record and a safe passage.' It may cost money, but it pays money, too; don't forget that."

This was the recently made remark of an officer of one of the German lines which has been noted for its swift ships—the *Fuerst Bismarck*, the *Kaiser Wilhelm der Grosse*, the *Deutschland* and the *Kronprinz Wilhelm*. These boats were all built in Germany; and now comes the fastest of them all, the *Kaiser Wilhelm II*. This remarkable vessel sailed from Bremen on April 14th, the largest and probably the fastest ocean steamship ever built.

The mere statistics of her dimensions are startling. In length she is 706½ feet—one foot and a half longer than the *Oceanic*—and her contract specifies 23½ knots. The Vulcan Shipbuilding Company at Stettin would not guarantee a greater speed, but there will be disappointment if she does not succeed in averaging from 24.45 to 25 knots an hour. If she does, the five-day boat—the dream of years—will have been realized. Her displacement is 20,000 tons, and her engines 40,000 horse-power. She is seventy-two feet broad and fifty-two feet six inches deep. There is a double bottom running the full length of the hull, divided into twenty-six compartments, while the hull itself has nineteen water-tight compartments. She has seven decks. The twin propellers have a diameter of twenty-two feet ten inches each.

Like the *Kronprinz* and *Grosse Kaiser*, she will have four funnels and three masts, and there are four sets of quadruple-expansion engines, two sets of engines working in each shoot. Although running at such a great speed, there will be no vibration, because the engines are set on principles involved in an invention known as the Schlick system, which obviates all motion on the bed-plates. The tubes in the condensers represent a length of forty-six and a half miles. The vessel has nineteen boilers and the steam pressure is 213 pounds to the square inch. The coal-bunkers are equal to those of four of the largest battle-ships in the world. For pumping water out of the hold in event of emergency there are seventeen powerful steam-pumps capable of throwing up over 2,000,000 gallons of water an hour. The chain cables and hawsers are more than a mile in length.

For passenger accommodation there are two imperial sections with dining-room, drawing-room, bedroom and bath-room; eight state apartments with sitting-room, bedroom and bath-room; and eight state cabins with a bath-room in each. There are 290 first-class cabins and 107 second-class cabins. The first saloon will seat 554 passengers at one time and the second saloon 190 passengers. There are first-class and second-class smoking-rooms, libraries, music-rooms and the like; a children's saloon, typewriting room, post-office, two Vienna cafés and a safe-deposit department. There are four kitchens, capable of supplying meals for 800 first-cabin passengers, 400 second-class and 1,100 third-class. The crew numbers 600 men; the engine-room staff aggregates 237 men.

As the Germans put it, "She is conspicuous and interesting, and endowed with qualities that will be eloquent testimony to German enterprise and energy and skill."

BRITISH SHIP-OWNERS AWAKE

GERMANY'S increasingly superior ocean steamships have awakened English ship-owners. The Cunard line has decided to build twin ships that will dwarf everything now afloat or planned. These boats will be, it is understood, 730 feet in length, 70 feet beam, and will have a speed of twenty-five knots. The horse-power of the engines will reach 59,760; the engines themselves will be of the six-cylinder variety, and there will be three sets of them driving triple screws. There will be twelve decks, and the accommodations will provide for 900 first-class passengers, 500 second-class and 2,000 steerage.

From Queenstown these vessels should cross the Atlantic in about four and one-half days. These new boats are to be called, it is said, the *Britannia* and the *Columbia*, and each will cost about $6,250,000. One of the conditions of the contract is interesting as showing what ship-owners are beginning to expect from ship-builders. It reads:

"If, at the end of a year's running, the vessels fail to achieve an average hourly speed of twenty-five knots an hour throughout a round trip from Queenstown to New York, they may be returned to their builders."

THE STARS AS ACCURATE GUIDES

THE stars have always been the guide-posts of the sea, but only recently has a device been invented by which they are accurately identified. In an overcast sky they will appear for a moment and then lose themselves behind a cloud. The mariner must by guess or by some diagram of his own work out his location from them.

The new invention consists of a star map over which swings a transparent scale, and it revolves from the point located on the map as the North Pole. On this scale are engraved the circles of altitude and the lines of bearing. From this map, by a slight calculation and by revolving the transparent scale until it is opposite certain figures indicated on the map, the ship's location can be instantly taken. The name of this particular star is obtained easily by reference to the nautical almanac by a guide on the chart.

This seemingly simple device is already in use on the American line and the Red Star line of steamers, and every new test reports success. It is the result of many years' study and hard labor on the part of Doctor Geissinger, whose idea it is. Even after the working model had been made and found satisfactory a difficulty arose. It seemed impossible to duplicate by any mechanical means the transparent indicator. No engraver could be found who was willing to undertake the work of reproducing exactly the fine lines and figures on this scale the use of which depended entirely on accuracy. The inventor immediately went at the task of planning a machine which would make the desired lines, and after infinite labor he constructed a mechanical device which engraves on the scale exactly the lines of his ingenious original model.

This new invention is likely to be an added preventative of accidents and delays in ocean travel. It bears the same relation to the latest collision bulkhead that preventive medicines bear to those that cure.

NEW CAR EQUIPMENT THAT MEANS GREATER EFFICIENCY

COAL stood for days in the coal-yards, last winter, when every day's delay meant suffering, because the cars could not be unloaded rapidly enough. There was for this reason a dearth of cars in active service. In some yards, however, a new kind of coal-car was in use. A safety locking device, at the end of the car, instantly let loose the longitudinal doors extending from end to end below the bed-frame of the car, and in less than a minute after the car was in place its contents were dumped. With these cars there was no delay.

The old-style coal-cars, with cross-sectional openings for unloading, usually carry about thirty tons. These new cars, with swinging steel bottoms opening lengthwise from end to end over the trucks, will carry from sixty to seventy tons of either coal or coke—three times their weight; the coke racks being made of steel. These cars are of the usual length and height for large capacity. The largest share of increased capacity is at the bottom, where it is most needed; and because the centre of gravity is lower, the cars ride more steadily and can stand increased weight.

The old-time coal-cars carry their load of coal, unload it, and go back in long, rattling lines, dirty and empty. Their return trip is dead loss. A variation of the new coal-car is a steel box-car with a double bottom, one a coal-dumping floor, the other the usual level floor, placed directly above and made in sections that can be folded back against the sides and ends of the car. After a load of coal is dumped a man enters the car with a compressed-air hose and rapidly plays condensed air over the black, smudgy inside. In a few minutes it is as clean as it was on the day it first came from the shops. The upper flooring is dropped and the car is loaded with ordinary merchandise for its trip back toward the mines. The capacity of this car is nearly double that of the ordinary box-car.

As a manufacturer remarked recently: "The reason we're ready enough to show visiting foreigners our new inventions is that we'll have something newer and better before they reach home."

A COMPANY FOR EXPERIMENTAL MANUFACTURE

A COMMERCIAL organization formed to do nothing but experiment is a novelty, but it is one of the results of the chemical work done with the help of power from Niagara Falls. The Ampere Electro-Chemical Company, at Niagara, has nothing

to sell or to manufacture. Its business is to discover methods by which electro-chemistry can do present tasks more easily than they are being done, and to invent new processes of manufacture. Most of the important discoveries made with chemicals in the last few years have been happened upon in an electric furnace or bath, and well-equipped scientists working with this single end in view should make rapid progress in reducing to practical terms the chemistry already known. The financial return to the company for its labor will come in royalties upon its discoveries and inventions.

Among the men at work are Mr. Thurlow, who discovered the process of making artificial camphor, and Mr. Jacobs, who first learned the method of making artificial carborundum, and many other men as widely known for their practical experiments with chemicals.

The effect of the electro-chemical companies on the business of the country is evident everywhere. Methods of manufacture are changing. Chemical compounds which a short time ago were too costly to prepare are used now to make pig-iron and steel or to bleach cotton and woolen goods. The work of this experimental company should make the change more rapid and efficient.

EXPERIENCES WITH WIRELESS TELEGRAPHY ON MOVING TRAINS

TELEPHONES have been used on many fast trains, but no method has been found by which a traveler on a moving train can telephone to any one not on the train. A stop at a station is his only opportunity. There seems to be no reason, however, why by wireless telegraphy a passenger upon a train going a mile a minute may not communicate with a telegraph station and thence with whom he pleases.

During the winter a notable experiment was made with wireless telegraphy on trains. A special train on the Grand Trunk Railway was able to communicate with stations along its route by means of electric waves. With a comparatively simple apparatus persons on the train received messages from a transmitting station, St. Dominique, over a distance of from eight to ten miles. On the train, which was running at a rate of fifty miles an hour, the messages were received by collecting wires connected to a coherer of nickel and silver powder. These collecting wires ran through the guides for the train signal cord.

A long vertical wire would probably have been more successful. These wires, also, were inside steel frame cars and yet definite signals were obtained. The vibration of the train undoubtedly jarred the sensitive adjustment of the relay. But in spite of all difficulties this pioneer experiment was successful. A better apparatus tried consecutively in careful tests is expected to obtain better results.

Wireless telegraphy overland has already been proved as successful and as practicable as over seas. It seems only a question of time when the railroads of the country will have apparatus so successful that a man on a train in Maine can talk comfortably with his friend in a New York business office.

ADAPTING MANUFACTURES TO THE FOREIGN DEMAND

ONE reason why American machines often do not sell in foreign markets," said an exporter recently, "is that we make things for the domestic demand and then expect to sell them abroad without learning what the people really need over there. We make what they want in Kansas and expect it to meet the needs of the people in Austria."

A good example of the different conditions for which the manufacturer must prepare is evident in the making of grain separators. An American machine will thresh, fan and load upon wagons 2,000 bushels of wheat in a day. Five hundred bushels in a day is extraordinary in England or France or Germany. Their machines are modern and the average yield of wheat on their farms reaches thirty-eight bushels to an acre. But they will not buy a rapidly working American machine.

The reason is not far to seek. First of all, the European farmer prizes the straw, and in their separators the straw passes through as straight as it goes in. It is bound up afterward by American binders, but the steel cylinders with steel teeth in our machines make their use impossible. Besides this, in the European machine the grain is well cleaned, often ready for grinding. It is separated into different grades for different classes of buyers. If an American could add these two qualities to the speed of our machines there would be no difficulty in selling them abroad.

A manufacturer who has been very successful in his export trade said the other day: "The goods we sell in Germany are very different from those we sell in Italy. It's the old story of Mohammed and the mountain. You can't make the market to suit the goods; you must make the goods to suit the market."